STIC Search Report
EIC 1700

Scientific & Technical Information Center
USPTO

STIC Database Tracking Number: 161808

TO: Fred Parker
Location: Rem 8D59
Art Unit : 1762
August 19, 2005

Case Serial Number: 09/694074

From: Les Henderson
Location: EIC 1700
REM 4B28 / 4A30
Phone: 571-272-2538

Leslie.henderson@uspto.gov

Search Notes

sira
Search and Information Resources Administration

STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact ***the EIC searcher or contact***:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art **found**, search results used as follows:*

  ☐ 102 rejection

  ☐ 103 rejection

  ☐ Cited as being of interest.

  ☐ Helped examiner better understand the invention.

  ☐ Helped examiner better understand the state of the art in their technology.

  Types of relevant prior art found:

  ☐ Foreign Patent(s)

  ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***

  ☐ Results verified the lack of relevant prior art (helped determine patentability).

  ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

Access DB# 161808

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Fred Parker Examiner # : 72396 Date: 8/8/05
Art Unit: 1762 Phone Number 30 21426 Serial Number: 09/694074
Mail Box and Bldg/Room Location: REM 8D59 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: See Attached

Inventors (please provide full names):

SCIENTIFIC REFERENCE BR
~~Sci & Tech Inf Cntr~~
AUG 0 8 RECD
Pat. & T.M. Office

Earliest Priority Filing Date:

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search on NPL clms 51-53, 92. Please note that virtually every Rebecca Jackman (INV) case I have ever had, there has been a paper or conference proceedings with her name on it which is useable as prior art!

Search with care!

Thx,

[signature]

****

STAFF USE ONLY		**Type of Search**		**Vendors and cost where applicable**	
Searcher:	LH	NA Sequence (#)		STN	$1,006.28
Searcher Phone #:		AA Sequence (#)		Dialog	$912.50
Searcher Location:		Structure (#)		Questel/Orbit	
Date Searcher Picked Up:		Bibliographic	✓	Dr.Link	
Date Completed:	8/19/05	Litigation		Lexis/Nexis	
Searcher Prep & Review Time:	30	Fulltext		Sequence Systems	
Clerical Prep Time:	340	Patent Family		WWW/Internet	
Online Time:	30	Other		Other (specify)	

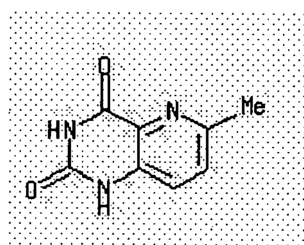
PTO-1590 (8-01)

29, page 6 of the specification. The applicant then states that several diseases or conditions can be treated by these compounds, such as pancreatitis or rhinitis. However, the applicant has not shown through literature citations or through data that vanilloid receptor regulation is necessary to the regulation of these stated diseases – therefore it is not clear if regulating vanilloid receptors will have an effect on the diseases claimed in claim 12 and at lines 22-29, page 6. The applicant does describe the synthesis of several compounds and states their physical and chemical properties, however, no data is provided on these compounds' functional characteristics on specific diseases in which vanilloid receptor plays a role or is implicated.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hcaplus 131:243279, and further in view of Hcaplus 125:315919.

Hcaplus 122:239661 teaches the instant compound, 

used for therapeutic purposes. The difference between the prior art compound and the instantly claimed compound is the teaching of a drug compound versus the same drug

compound that is used in combination with a second drug substance to treat rheumatoid arthritis. Hcaplus 125:315919 teaches that antirheumatic arthritic drugs can be used in combination therapy with other drugs to treat rheumatoid arthritis. It would have been obvious to one of ordinary skill in the art combine an antirheumatic drug with the instant compound to treat rheumatoid arthritis. Accordingly, the combination is deemed unpatentable therefrom in the absence of a showing of unexpected results for the claimed compounds over those of the generic prior art compounds.

Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The closest prior art reference Hcaplus 54: 17025. The difference between the Hcaplus 54: 17025 compound and the instantly claimed compound is the R3 group. The instant compound is patentable over the prior art compound R3 is C(O)OC1-4alkyl whereas in the prior art compound, R3 is H. C(O)OC1-4alkyl is not obvious over hydrogen.

The prior art reference does not teach nor suggest to one of ordinary skill in the art how to modify the prior art compound to derive the instant compound.

The IDS filed 8/3/04 and 11/18/03 have been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binta M. Robinson whose telephone number is (571) 272-0692. The examiner can normally be reached on M-F (9:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. James O. Wilson can be reached on 571-272-0661.

A facsimile center has been established. The hours of operation are Monday through Friday, 8:45 AM to 4:45 PM. The telecopier numbers for accessing the facsimile machine are (703)308-4242, (703)305-3592, and (703)305-3014.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)-272-1600.

BMR
August 5, 2005

In the Claims

Please replace all prior versions, and listings, of claims in the application with the following list of claims:

Please amend claims 92 and 96 as shown below.

1-50. (Canceled)

51. (Previously presented) A method comprising:

shielding a first portion, having a lateral surface dimension of less than 1 millimeter, of a surface of an article with a polymeric mask including at least one channel that defines a second portion of the surface of the article that remains unshielded by the mask, by positioning the mask in conformal contact with the surface without degrading a portion of the mask proximate the second portion of the surface; and

applying a biological agent to the second portion of the surface of the article.

52. (Previously presented) A method comprising:

shielding a first portion of a curved surface of an article with a polymeric mask by bringing a surface of the mask into conformal contact with the curved surface of the article; and

allowing an agent to pass through a channel within the mask having a dimension of less than 1 millimeter and to be applied to a second portion of the surface of the article while preventing application of the agent to the first portion with the mask.

53. (Previously presented) A method comprising:

shielding a first portion of a surface of an article with a polymeric masking system by bringing a surface of the masking system having a dimension of less than 1 millimeter into conformal contact with a surface of the article;

allowing an agent to be applied to a second, unshielded portion of the surface of the article while preventing application of the agent to the first portion of the surface of the article with the masking system;

re-placing the masking system; and

applying a biological agent to at least a portion of the first portion of the surface of the article.

54. (Previously presented) A method as in claim 53, the shielding step comprising contacting the first portion of the surface of the article with a portion of a mask, and the re-placing step comprising removing the mask from the surface and applying the agent to the first portion without shielding the surface of the article with the mask.

55. (Previously presented) A method as in claim 53, the re-placing step comprising re-orienting and re-sealing a mask of the masking system in relation to the surface of the article.

56. (Previously presented) A method as in claim 53, wherein the masking system comprises a second mask, positioned between a source of the agent and a first mask, the first mask positioned between the second mask and the surface of the article.

57. (Previously presented) A method as in claim 56, wherein the first mask seals against the surface of the article and the second mask seals against the first mask.

58. (Original) A method as in claim 57, wherein each of the first and second masks is a flexible polymeric article.

59. (Original) A method as in claim 58, wherein each of the first and second masks is elastomeric.

60. (Previously presented) A method as in claim 59, comprising applying the agent to the second portion of the surface, re-placing the masking system by removing the second mask from the first mask thereby exposing at least a portion of the first portion of the surface while allowing the first mask to shield another portion of the first portion of the surface, and applying an agent to at least a portion of the first portion of the surface while shielding another portion of the first portion of the surface with the first mask.

61. (Previously presented) A method as in claim 59, comprising applying a first agent to the second portion of the surface, re-placing the mask by removing the second mask from the first mask thereby exposing at least a portion of the first portion of the surface while allowing the first mask to shield another portion of the first portion of the surface, and applying a second, different agent to at least a portion of the first portion of the surface while shielding another portion of the first portion of the surface with the first mask.

62. (Previously presented) A method as in claim 53, comprising applying a first agent to the second portion of the surface, re-placing the mask by removing the second mask from the first mask thereby exposing at least a portion of the first portion of the surface while allowing the first mask to shield another portion of the first portion of the surface, and applying a second, different agent to at least a portion of the first portion of the surface while shielding another portion of the first portion of the surface with the first mask.

63-90. (Cancelled)

91. (Previously presented) A method as in claim 52, wherein the agent is a biological agent.

92. (Currently amended) A method comprising:

shielding a first portion of a surface of an article with ~~a polymeric~~ <u>an elastomeric</u> masking system comprising at least a first mask and a second mask by bringing a surface of the first mask having a dimension of less than 1 millimeter into conformal contact with a surface of the article such that the first mask is positioned between the second mask and the surface of the article;

allowing an agent to be applied to a second, unshielded portion of the surface of the article while preventing application of the agent to the first portion of the surface of the article with the masking system;

re-placing at least a portion of the masking system; and

applying an agent to at least a portion of the first portion of the surface of the article.

93. (Previously presented) A method as in claim 92, the re-placing step comprising removing the first mask from the surface and applying the agent to the first portion without shielding the surface of the article with the first mask.

94. (Previously presented) A method as in claim 92, the re-placing step comprising re-orienting and re-sealing the first mask of the masking system in relation to the surface of the article.

95. (Previously presented) A method as in claim 92, wherein the first mask seals against the surface of the article and the second mask seals against the first mask.

96. (Currently amended) A method as in claim 95, wherein each of the first and second masks is a flexible ~~polymeric article~~.

97. (Previously presented) A method as in claim 96, wherein each of the first and second masks is elastomeric.

98. (Previously presented) A method as in claim 97, comprising applying the agent to the second portion of the surface, re-placing the masking system by removing the second mask from the first mask thereby exposing at least a portion of the first portion of the surface while allowing the first mask to shield another portion of the first portion of the surface, and applying an agent to at least a portion of the first portion of the surface while shielding another portion of the first portion of the surface with the first mask.

99. (Previously presented) A method as in claim 97, comprising applying a first agent to the second portion of the surface, re-placing the mask by removing the second mask from the first mask thereby exposing at least a portion of the first portion of the surface while allowing the first mask to shield another portion of the first portion of the surface, and applying a second,

different agent to at least a portion of the first portion of the surface while shielding another portion of the first portion of the surface with the first mask.

100. (Previously presented) A method as in claim 92, comprising applying a first agent to the second portion of the surface, re-placing the mask by removing the second mask from the first mask thereby exposing at least a portion of the first portion of the surface while allowing the first mask to shield another portion of the first portion of the surface, and applying a second, different agent to at least a portion of the first portion of the surface while shielding another portion of the first portion of the surface with the first mask.

09/694074 | Examiner: PARKER, FREDERICK | GAU: 1762

Classification: 427/282.000 | Inventor: JACKMAN , REBECCA, et al

Status: 71 - RESPONSE TO NON-FINAL OFFICE ACTION ENTERED AND FORWARDED TO EXAMINER

Title: ELASTOMERIC MASK AND USE IN FABRICATION OF DEVICES INCLUDING PIXELATED ELECTROLUMINESCENT DISPLAYS

Bib Data report

DUFFY DAVID	CAMBRIDGE	MASSACHUSETTS
WHITESIDES GEORGE	NEW	MASSACHUSETTS
VAETH KATHLEEN	ROCHESTER	NEW YORK
JENSEN KLAVS	LEXINGTON	MASSACHUSETTS

Attorneys: ALL **Attorney Docket No:** H0498/7085 TJO

Interference No: **Lost Case:** No **Unmatched Petition:** No **L&R Code** 1

Bib Data report

Application Title: ELASTOMERIC MASK AND USE IN FABRICATION OF DEVICES INCLUDING PIXELATED ELECTROLUMINESCENT DISPLAYS

Application Num: (in phx) 09/694074 **Filing Date:** 10/20/2000 **Effective Filing:** 10/20/2000
(Location History) (Foreign/Continuity Data)

Status: 71 /RESPONSE TO NON-FINAL OFFICE ACTION ENTERED AND FORWARDED TO EXAMINER **Status Date:** 07/12/2005

Patent Number: Not Issued **Issue Date:** N/A **Date of Abandonment:** N/A
Confirmation Number: 2002 **PALM Location:**

Examiner: 72396 PARKER, FREDERICK (Assignment Data) **Group Art Unit:** 1762 **Class/Subclass:** 427/282.000

State or Country: MASSACHUSETTS **Sheets/Drawing:** 11 **Total Claims:** 90 **Independent Claims:** 8

Inventors:

Last name, First name:	City:	Country or State:
[redacted]	BOSTON	MASSACHUSETTS

HARVARD

```
? show files
File   2:INSPEC 1969-2005/Aug W1
         (c) 2005 Institution of Electrical Engineers
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         (c) 2005 NTIS, Intl Cpyrght All Rights Res
File   8:Ei Compendex(R) 1970-2005/Aug W1
         (c) 2005 Elsevier Eng.  Info. Inc.
File  35:Dissertation Abs Online 1861-2005/Jul
         (c) 2005 ProQuest Info&Learning
File  62:SPIN(R) 1975-2005/Jun W1
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         (c)2005 Japan Science and Tech Corp(JST)
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         (c) 2005 FIZ TECHNIK
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File 293:Engineered Materials Abstracts 1966-2005/Jul
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File 315:ChemEng & Biotec Abs 1970-2005/Jul
         (c) 2005 DECHEMA
File 323:RAPRA Rubber & Plastics 1972-2005/Jul
          (c) 2005 RAPRA Technology Ltd
File 347:JAPIO Nov 1976-2005/Apr(Updated 050801)
         (c) 2005 JPO & JAPIO
File 350:Derwent WPIX 1963-2005/UD,UM &UP=200553
         (c) 2005  Thomson Derwent
? ds

Set     Items   Description
S1         59   E3,E9,E10
S2     398846   MASK? OR PHOTOMASK? OR (PHOTO? ? OR POSITIVE? OR POS OR NE-
             GATIVE? OR NEG)(2N)MASK?
S3         14   S1 AND S2
S4        756   E3,E6,E10
S5         54   S2 AND S4
S6         12   S1 AND S5
S7         38   S1 AND S4
S8         12   S7 AND S2
S9        654   CONFORM?(3N)S2
S10         9   S9(5N)ELAST?
S11       716   ELAST?(3N)S2
S12         5   S11 AND COHER?
S13        29   S11 AND CONFORM?
S14      4332   S2(3N)(POLYM OR POLYMER?? OR HOMOPOLYMER? OR COPOLYMER? OR
             TERPOLYMER? OR RESIN? OR GUM?)
S15        65   S14 AND (CONFORM? OR COHER?)
S16      4626   AU=DUFFY ?
S17       210   AU=VAETH ?
S18     21523   AU=JENSEN ?
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S19	3	S7 AND S16 AND S18
S20	3	S19 AND S2
S21	33	S10 OR S12 OR S13
S22	0	S21 AND CHANNEL?
S23	5057	S2 AND ELAST?
S24	165	S23 AND (CONFORM? OR COHER?)
S25	410620	SHIELD? OR UNSHIELD?
S26	3	S25 AND S24
S27	8300913	SURFAC? OR EXTERIOR?
S28	82	S24 AND S27
S29	19129257	FIRST? OR SECOND? OR 1ST? OR 2ND? OR ONE OR TWO
S30	44	S28 AND S29
S31	1	S30 AND S25
S32	3802880	AGENT? OR ADDITIVE? OR RETARDER? OR IMPROVER? OR STABILIZE-R? OR STABILISER? OR INHIBITOR? OR MODIFIER? OR ACTIVATOR? OR DEACTIVATOR? OR APPRECIATOR? OR BOOSTER? OR SUPPRESSOR? OR SC-AVENGER? OR ENHANCER? OR ACCELERATOR? OR ACCELERATER? OR ACCE-LERANT?
S33	10	S30 AND S32
S34	12367750	MM OR MILLIMETER? OR (MILLI OR CENTI OR MICRO OR NANO)()ME-TER? OR CM OR CENTIMET? OR MICRON? OR MU()M OR MICROMETER? OR NM OR NANOMET? OR DIMEN? OR THICK? OR THIN? OR WIDTH? OR WIDE? OR LENGTH?
S35	10	S33 AND S30
S36	10	S33 AND S28
S37	147	S23 AND S25
S38	3	S37 AND CONFORM?
S39	63	S37 AND (S27 OR SUBSTRAT?)
S40	44	S39 AND (S29 OR S32 OR S34)
S41	7298664	WIDTH? OR WIDE? OR DEPTH? OR DEEP? OR THICK? OR THIN?
S42	19	S39 AND S41
S43	15	S39 AND (REMOV? OR REPLAC? OR RE()(MOV? OR PLAC?))
S44	28	S37 AND (REMOV? OR REPLAC? OR RE()(MOV? OR PLAC?))
S45	151	S15 OR S21 OR S26 OR S31 OR S33 OR S35 OR S36 OR S38 OR S42 OR S43 OR S44
S46	183	S15 OR S30 OR S39 OR S44
S47	213	S45 OR S46
S48	195	RD (unique items)
S49	135	RD S45 (unique items)
S50	171	RD S46 (unique items)
S51	104	S48 AND CONFORM?
S52	65	S51 AND (S41 OR S34)
S53	73	S48 AND (CONTACT? OR ADHER?)
S54	107	S52 OR S53
S55	86	S54 AND (SURFAC? OR SUBSTRAT?)
S56	86	S2 AND S55
S57	15	S56 AND S32
S58	4	S57 AND (HAIR? OR FOOT? OR FURNITUR?)
S59	11	S57 NOT S58
S60	14	S56 AND S11
S61	15248	LIFTOFF? OR LIFT(N)OFF?
S62	9	S61 AND S11

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S63        36   S48 AND S11
S64        15   S52 AND S11
S65        57   S57 OR S59 OR S60 OR S62 OR S63 OR S64
S66         6   S48 AND S61
S67        59   S65 OR S66
S68        43   S67 NOT (HAIR? OR FOOT? OR FURNITUR? OR FACE?)
S69        16   S67 NOT S68
S70         8   S15 AND S32
S71         0   S15 AND S25
S72        34   S15 AND S27
S73        16   S15 AND (CONTACT? OR TOUCH?)
S74        13   S65 AND (RELEAS? OR S61)
S75        43   S68 OR S74
S76         7   S15 AND (CHANNEL? OR HOLE? OR ORIFIC?)
S77        42   S15 AND (S34 OR S41)
S78        29   S15 AND (S29 OR PRIMAR?)
S79        48   S15 AND (MOV? OR REMOV? OR REPLAC? OR APPLY? OR APPLI? OR -
             POSIT? OR PROX? OR RE()(MOV? OR PLAC? OR APPL?))
S80        31   S15 AND (PORTION? OR SECTION? OR AREA?)
S81        97   S70 OR (S72:S80)
S82        86   RD (unique items)
S83         6   S82 AND (HAIR? OR FOOT? OR FURNITUR? OR SKIN?)
S84         2   S82 AND (HAIR? OR FOOT? OR FURNITUR? OR FASHION? OR COSMET-
             ?)
S85         5   S83 NOT S84
S86        84   S82 NOT S84
S87        90   S86 OR S75
S88        12   S8 OR S20
S89        99   S87 OR S88
S90        92   RD (unique items)
S91         7   S89 NOT S90
? ? t s89/7,ds/1-53
>>>No matching display code(s) found in file(s): 2, 6, 8, 35, 62, 65,
   94-95, 144, 293, 315, 347
```

89/7,DS/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

8034069 INSPEC Abstract Number: B2004-09-2550N-003
Title: Nanofabrication with water-dissolvable ***polymer*** ***masks*** of polyvinyl alcohol (PVA): MxL
Author(s): Schaper, C.D.
Author Affiliation: Dept. of Electr. Eng., Stanford Univ., CA, USA
Journal: Proceedings of the SPIE - The International Society for Optical Engineering Conference Title: Proc. SPIE - Int. Soc. Opt. Eng. (USA) vol.5374, no.1 p.325-36
Publisher: SPIE-Int. Soc. Opt. Eng,
Publication Date: 2004 Country of Publication: USA
CODEN: PSISDG ISSN: 0277-786X
SICI: 0277-786X(2004)5374:1L.325:NWWD;1-P
Material Identity Number: C574-2004-162

U.S. Copyright Clearance Center Code: 0277-786X/04/$15.00
Conference Title: Emerging Lithographic Technologies VIII
Conference Date: 25-26 Feb. 2004 Conference Location: Santa Clara, CA, USA
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Practical (P); Experimental (X)
Abstract: The paper describes the use of water-dissolvable masks, formed from a polyvinyl alcohol film forming solution, for high-resolution pattern definition and materials-transfer printing. The approach replicates ***surface*** patterns as water-soluble ***polymer*** ***masks*** (templates) by spin-casting the film-forming solution onto a master pattern. The water-soluble mask is coupled to a substrate by polymer adhesion to form a solid ***two*** -layer structure. Water is used to dissolve the mask layer to uncover the formed pattern in the adhesive layer, thereby providing a new release mechanism for ***contact***-based methods of pattern formation. Moreover, the patterned polymer adhesion transfer process enables a large-***area***, ***conformable***, single-use template addressed towards meeting registration and defect control challenges in ***contact*** printing. The process further incorporates the capability to replicate with loaded nanostructured materials to form a composite of nanoparticles in a soluble polymeric matrix with a patterned ***surface***. The embedded particles are accessible at the ***surface*** of the template and thereby are concurrently transferred to the substrate through the polymer adhesion process and subsequently released from the soluble template after water-dissolution in a structured manner. The paper also describes ***applications*** of PVA in forming ***polymer*** ***masks*** as (a) suspended ***thin*** -film templates, (b) imprinting templates for repeated use, and (c) as templates for nanoparticle formation by collimated deposition. Polyvinyl alcohol thus provides an additional material for consideration as a mask (template) for nanofabrication, and would be an alternative to quartz, silicon, and polydimethylsiloxane (PDMS) in that regard. The class of printing techniques using PVA as a mask material is referred to as molecular transfer lithography (MxL). (20 Refs)
Subfile: B

89/7,DS/2 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC

7069457 INSPEC Abstract Number: A2001-23-4285D-001, B2001-12-2550G-002
Title: Fabrication of mid-infrared frequency-selective ***surfaces*** by soft lithography
Author(s): Paul, K.E.; Cheng Zhu; Love, J.C.; Whitesides, G.M.
Author Affiliation: Dept. of Chem., Harvard Univ., Cambridge, MA, USA
Journal: Applied Optics vol.40, no.25 p.4557-61
Publisher: Opt. Soc. America,
Publication Date: 1 Sept. 2001 Country of Publication: USA
CODEN: APOPAI ISSN: 0003-6935
SICI: 0003-6935(20010901)40:25L.4557:FIFS;1-Y

Material Identity Number: A132-2001-027
U.S. Copyright Clearance Center Code: 0003-6935/2001/254557-05$15.00/0
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: We describe the fabrication of large areas (4 ***cm***/sup 2/) of metallic structures or aperture elements that have ~100-350-***nm*** linewidths and act as frequency-selective ***surfaces***. These structures are fabricated with a type of soft lithography-near-field ***contact*** -mode photolithography-that uses a ***thin*** ***elastomeric*** ***mask*** having topography on its ***surface*** and is in ***conformal*** ***contact*** with a layer of photoresist. The ***mask*** acts as an optical element to create minima in the intensity of light delivered to the photoresist. Depending on the type of photoresist used, lines of, or trenches in, photoresist are formed on the ***substrate*** by exposure, development, and ***lift***-***off***. These ***surfaces*** act as bandpass or bandgap filters in the infrared. (18 Refs)
Subfile: A B

89/7,DS/3 (Item 3 from file: 2)
DIALOG(R)File 2:INSPEC

6329253 INSPEC Abstract Number: B1999-10-4260-003
Title: Patterning electroluminescent materials with feature sizes as small as 5 mu m using ***elastomeric*** membranes as ***masks*** for dry ***lift***-***off***
Author(s): Duffy, D.C.; Jackman, R.J.; Vaeth, K.M.; Jensen, K.F.; Whitesides, G.M.
Author Affiliation: Dept. of Chem., Harvard Univ., Cambridge, MA, USA
Journal: Advanced Materials vol.11, no.7 p.546-52
Publisher: VCH Verlagsgesellschaft,
Publication Date: 7 May 1999 Country of Publication: Germany
CODEN: ADVMEW ISSN: 0935-9648
SICI: 0935-9648(19990507)11:7L.546:PEMW;1-0
Material Identity Number: M606-1999-009
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: High resolution displays require simple, reliable methods to pattern electroluminescent materials. Here is reported the fabrication of soft, elastomeric membranes containing holes with diameters ranging from 5 mu m to 50 mu m. By use of two membranes, the authors demonstrate multicolor photoluminescent patterns of organic materials with a solvent-free, non-photolithographic method. (27 Refs)
Subfile: B

89/7,DS/4 (Item 4 from file: 2)
DIALOG(R)File 2:INSPEC

5857675 INSPEC Abstract Number: B9804-2550G-041
Title: Generating ~90 ***nanometer*** features using near-field contact-mode photolithography with an ***elastomeric*** phase ***mask***
Author(s): Rogers, J.A.; Paul, K.E.; Jackman, R.J.; Whitesides, G.M.
Author Affiliation: Dept. of Chem., Harvard Univ., Cambridge, MA, USA
Journal: Journal of Vacuum Science & Technology B (Microelectronics and Nanometer Structures) vol.16, no.1 p.59-68
Publisher: AIP for American Vacuum Soc,
Publication Date: Jan.-Feb. 1998 Country of Publication: USA
CODEN: JVTBD9 ISSN: 0734-211X
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Document Number: S0734-211X(98)01201-3
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: This article describes a near-field photolithographic method that uses an ***elastomeric*** phase ***mask*** in ***conformal*** contact with photoresist. The method is capable of generating ~90 ***nm*** lines in commercially available photoresist, using broadband, incoherent light with wavelengths between 330 and 460 ***nm***. Transfer of these patterns into silicon dioxide and gold demonstrates the integrity of the patterned resist. (16 Refs)
Subfile: B
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89/7,DS/5 (Item 5 from file: 2)
DIALOG(R)File 2:INSPEC
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5592169 INSPEC Abstract Number: B9707-2550G-005
Title: Using an ***elastomeric*** phase ***mask*** for sub-100 ***nm*** photolithography in the optical near field
Author(s): Rogers, J.A.; Paul, K.E.; Jackman, R.J.; Whitesides, G.M.
Author Affiliation: Dept. of Chem., Harvard Univ., Cambridge, MA, USA
Journal: Applied Physics Letters vol.70, no.20 p.2658-60
Publisher: AIP,
Publication Date: 19 May 1997 Country of Publication: USA
CODEN: APPLAB ISSN: 0003-6951
SICI: 0003-6951(19970519)70:20L.2658:UEPM;1-E
Material Identity Number: A135-97022
U.S. Copyright Clearance Center Code: 0003-6951/97/70(20)/2658/3/$10.00
Document Number: S0003-6951(97)03420-7
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: Bringing an ***elastomeric*** phase ***mask*** into ***conformal*** ***contact*** with a layer of photoresist makes it possible to perform photolithography in the near field of the ***mask***. This technique provides an especially simple method for forming features with

sizes of 90-100 ***nm*** in photoresist: straight lines, curved lines, and posts, on both curved and planar ***surfaces***. It combines experimental convenience, new optical characteristics, and applicability to nonplanar ***substrates*** into a new approach to fabrication. Nanowire polarizers for visible light illustrate ***one*** application for this technique. (16 Refs)
Subfile: B

89/7,DS/6 (Item 6 from file: 2)
DIALOG(R)File 2:INSPEC

4844942 INSPEC Abstract Number: A9502-4278-014, B9502-4190-001
Title: Dry etching for ***coherent*** refractive microlens arrays
Author(s): Stern, M.B.; Jay, T.R.
Author Affiliation: Lincoln Lab., MIT, Lexington, MA, USA
Journal: Optical Engineering vol.33, no.11 p.3547-51
Publication Date: Nov. 1994 Country of Publication: USA
CODEN: OPEGAR ISSN: 0091-3286
U.S. Copyright Clearance Center Code: 0091-3286/94/$6.00
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: ***Coherent*** arrays of refractive micro-optics are fabricated in the ***surface*** of silicon using a combination of lithographic and reactive-ion etching (RIE) techniques. The aspheric profile can be approximated in a stepwise manner by iterative steps of photolithography and RIE (binary optics technology), by direct etching of a preshaped ***polymer*** microlens etch ***mask*** into the substrate, or by analog etching of a lens profile directly into the substrate through a pinhole mask. (18 Refs)
Subfile: A B

89/7,DS/7 (Item 7 from file: 2)
DIALOG(R)File 2:INSPEC

4772807 INSPEC Abstract Number: B9411-2550F-010
Title: ***Thin*** film pitting: Is NMP the culprit?
Author(s): Lee, F.T.; Wanlass, D.R.; Walsh, B.
Author Affiliation: EMT Div., Ardrox, Campbell, CA, USA
Journal: Semiconductor International vol.17, no.6 p.175-6, 178, 180
Publication Date: June 1994 Country of Publication: USA
CODEN: SITLDD ISSN: 0163-3767
Language: English Document Type: Journal Paper (JP)
Treatment: Practical (P); Experimental (X)
Abstract: N-methyl pyrrolidone, with its high solvent activity has become a popular chemical in the electronics industry. Often used to ***remove*** ***polymeric*** solder ***mask*** and ***conformal*** coatings, NMP has

also become ***widely*** used in the photoresist stripping ***area*** of many fabrications. Often other blends are added to NMP to make the stripping more effective or to enhance NMP's solvent blending properties. Testing showed that NMP blends often caused some negative effects on the substrate ***surface***, which is composed of Al, Si and Cu. This effect is commonly termed metal corrosion. (2 Refs)
Subfile: B

89/7,DS/8 (Item 8 from file: 2)
DIALOG(R)File 2:INSPEC

03545453 INSPEC Abstract Number: B90007481
Title: Solder mask testing for high rel printed circuit boards
Author(s): Juskey, F.
Author Affiliation: Motorola Inc., Fort Lauderdale, FL, USA
Conference Title: Proceedings of the Technical Program. NEPCON East '89 p.503-9
Publisher: Cahners Exposition Group, Des Plaines, IL, USA
Publication Date: 1989 Country of Publication: USA 1028 pp.
Conference Date: 13-15 June 1989 Conference Location: Boston, MA, USA
Language: English Document Type: Conference Paper (PA)
Treatment: Practical (P)
Abstract: Solder masks were originally conceived to keep solder from running down circuit patterns and depleting solder joints. While solder masks still perform this task, many new and greater expectations are placed upon the solder mask. These new jobs are ***conformal*** coating, pacifying ***surfaces***, and providing an insulation layer so that components do not short to runners. As these new solder masking roles have expanded so has the requirement for the masks to be more consistent and reliable. Many tests have been developed by both the manufacturers and users of solder masks to insure the quality of the mask materials. The IPC has led the way with guidelines such as SM-840 'Qualification and Performance of Permanent ***Polymer*** coating (Solder ***Mask***) for Printed Boards'. The tests prescribed in the SM-840 document are strenuous in some ***areas*** but still leave room for improvement in the testing methods. The next generation board's solder mask will require an order of magnitude increase in reliability. The paper discusses the way to achieve increased reliability. (4 Refs)
Subfile: B

89/7,DS/9 (Item 9 from file: 2)
DIALOG(R)File 2:INSPEC

03474722 INSPEC Abstract Number: A89124438
Title: Optical heterodyned ***coherent*** Brillouin spectroscopy (OHD-BIKES) using continuous-wave (CW) dye lasers
Author(s): Haga, T.; Higuchi, M.; Abe, K.; Shigenari, T.
Author Affiliation: Dept. of Appl. Phys. & Chem., Univ. of

Electro-Commun., Tokyo, Japan
Journal: Japanese Journal of Applied Physics, Part 1 (Regular Papers & Short Notes) vol.28, no.7 p.1199-205
Publication Date: July 1989 Country of Publication: Japan
CODEN: JAPNDE ISSN: 0021-4922
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: Steady-state ***coherent*** Brillouin spectroscopy using continuous wave (CW) lasers was demonstrated. Use of CW dye lasers and optically heterodyned detection, Brillouin-induced Kerr effect spectroscopy (CW-OHD-BIKES) was shown to have higher resolution power than conventional linear spectroscopy and pulsed-laser BIKES. The linewidth of the spectrum (FWHM 93 MHz in CS/sub 2/) was limited by the stability of the dye lasers. Besides the Brillouin signals, ***coherent*** Rayleigh (quasi-elastic) spectrum was also observed in C/sub 6/H/sub 6/ and C/sub 6/H/sub 5/Cl. Compared to CARS-type spectroscopy, the CW-BIKES does not require the phase-matching condition and the spectrum can be observed without being ***masked*** by ***elastic*** Rayleigh scattering, so it might be useful for the study of low-energy excitations in anisotropic media, such as crystals.
Subfile: A

89/7,DS/10 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS

2150377 NTIS Accession Number: DE98629833/XAB
Influence of the PDMS technique in the study of the induced modifications of polymers used in nuclear environment
(THESIS)
Nsouli, B.
Corp. Source Codes: 888888888
Report No.: LYCEN-T-9545
20 Jul 1995 179p
Languages: French Document Type: Thesis
Journal Announcement: USGRDR0006; NSA0007
French.
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NTIS Prices: PC A10/MF A02
Country of Publication: United States
The PDMS technique (Particle Induced Desorption Mass Spectrometry) combined with a TOF detection (Time of Flight) is the main tool used in this study of polymer degradation in nuclear environment. Ar(3+) ions with a 9 MeV energy have been used to induce the ***secondary*** ion emission, and the study was devoted to ***two*** stresses typical of this type of environment. The ***first*** part of the work concerned with the structural modifications induced by gamma irradiation on ion exchange resin, used for

nuclear effluents reprocessing, namely the poly(4-vinylpyridine), or P-4PV. For such a material, the negative fragment emission is particularly sensitive to structural modifications. Difficult physical measurements in such an insoluble and infusible material (IR, UV - Vis, EPR, TGA, dielectric measurements) became consistent after the degradation mechanisms were elucidated. These effects, interpreted in terms of scissions and recombinations, enabled us to explicit different modes of energy deposition, and shed light on some discrepancies between SIMS and PDMS. The ***second*** part of the study is devoted to the thermal ageing of an ***elastomer*** , used in fabrication of valve gaskets submitted to high temperatures. We studied the constituents of the polymeric material, i. e. copolymer, homo polymers, and also ***additives***. This last component proved useful to analyze, as a superficial lubricant layer can ***mask*** the ***conformational*** rearrangements which seem to occur after few hours of thermal treatment (PE blocks are prevailing at the ***surface***). Here too, the PDMS information is important to account for static SIMS and ESCA results, as its probed layer ***thickness*** lies in-between. (author) 187 refs.

89/7,DS/11 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

07324864 E.I. No: EIP05139015232
Title: Spontaneous motion observed in highly sensitive ***surface*** relief formation system
Author: Ubukata, Takashi; Higuchi, Takeshi; Zettsu, Nobuyuki; Seki, Takahiro; Hara, Masahiko
Corporate Source: Loc. Spatio-Temporal Functions Lab. RIKEN Frontier Research System, Wako, Saitama 351-0198, Japan
Source: Colloids and Surfaces A: Physicochemical and Engineering Aspects A Selection of Papers from the 10th International Conference on Organised Molecular Film v 257-258 May 5 2005. p 123-126
Publication Year: 2005
CODEN: CPEAEH ISSN: 0927-7757
Language: English
Document Type: JA; (Journal Article) Treatment: X; (Experimental)
Journal Announcement: 0504W2
Abstract: ***Surface*** relief gratings formed on a liquid-crystalline azobenzene polymer film known as a highly sensitive system were investigated to obtain ***deeper*** insights into polymer migration on the ***micrometer*** scale. A ***surface*** relief formation was induced with incoherent nonpolarized patterned blue-light using a photomask instead of interference patterns of a ***coherent*** laser. Spontaneous lateral migration was observed under the edge of the grating photomask at room temperature even after terminating light irradiation. It was found that interfacial tension and the living cis form of azobenzene are essential for inducing spontaneous motion. copy 2004 Published by Elsevier B.V. 14 Refs.

89/7,DS/12 (Item 2 from file: 8)

DIALOG(R)File 8:Ei Compendex(R)

06771477 E.I. No: EIP04138077160
Title: A Method for Making Elastic Metal Interconnects
Author: Jones, Joyelle; Lacour, Stephanie Perichon; Wagner, Sigurd; Suo, Zhigang
Corporate Source: Department of Electrical Engineering Princeton University, Princeton, NJ 08540, United States
Conference Title: Flexible Electronics - Materials and Device Technology
Conference Location: San Francisco, CA, United States Conference Date: 20030422-20030425
E.I. Conference No.: 62440
Source: Materials Research Society Symposium - Proceedings v 769 2003.
Publication Year: 2003
CODEN: MRSPDH ISSN: 0272-9172
Language: English
Document Type: CA; (Conference Article) Treatment: X; (Experimental)
Journal Announcement: 0403W5
Abstract: Stretchable, elastic metal interconnects are a key to the fabrication of 3-D ***conformal*** circuits and electrotextiles. The basic concept for reversibly stretchable, elastic metallization is a corrugated stripe of ***thin***-film metal that is expanded by stretching. The maximum elongation is reached when the stripe is stretched flat. We prepared wavy metal stripes by evaporating gold onto pre-stretched strips of the elastomer, poly-dimethyl siloxane (PDMS). We experimented with gold metal line ***width*** and ***thickness*** and ***substrate*** elongation. We measured the film structure, amplitude, and wavelength, as well as electrical resistance in relaxed and various stretched states. So far we have reached elastic strains of 15% while maintaining the initial resistance and 80% with a rise in the resistance. We discovered a rich macroscopic and microscopic film morphology. Presented are the fabrication, electro-mechanical performance, and data on the film structure of these wavy metal interconnects. 4 Refs.

89/7,DS/13 (Item 3 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

06471651 E.I. No: EIP03317573915
Title: Fabrication of mid-infrared frequency-selective surfaces by soft lithography
Author: Paul, Kateri E.; Zhu, Cheng; Love, J. Christopher; Whitesides, George M.
Corporate Source: Department of Chemistry Harvard University, Cambridge, MA 02138-2902, United States
Source: Applied Optics v 40 n 25 Sep 1 2001. p 4557-4561
Publication Year: 2001
CODEN: APOPAI ISSN: 0003-6935
Language: English
Document Type: JA; (Journal Article) Treatment: X; (Experimental)

Journal Announcement: 0308W1
Abstract: We describe the fabrication of large areas (4 cm**2) of metallic structures or aperture elements that have similar to 100-350-nm linewidths and act as frequency-selective surfaces. These structures are fabricated with a type of soft lithography - near-field contact-mode photolithography - that uses a thin ***elastomeric*** ***mask*** having topography on its surface and is in conformal contact with a layer of photoresist. The mask acts as an optical element to create minima in the intensity of light delivered to the photoresist. Depending on the type of photoresist used, lines of, or trenches in, photoresist are formed on the substrate by exposure, development, and ***lift***-***off***. These surfaces act as bandpass or bandgap filters in the infrared. copy 2001 Optical Society of America. 18 Refs.

89/7,DS/14 (Item 4 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

06181672 E.I. No: EIP02447171986
Title: Low ***surface*** energy polymeric ***release*** coating for improved ***contact*** print lithography
Author: Mancini, David P.; Resnick, Douglas J.; Gehoski, Kathleen A.; Popovich, Laura L.; Chang, Daniel Y.
Corporate Source: Physical Sciences Resesrch Labs. Motorola Labs, Tempe, AZ 85284, United States
Conference Title: 21th Annual BACUS Symposium on Photomask Technology
Conference Location: Monterey, CA, United States Conference Date: 20011003-20011005
Sponsor: BACUS
E.I. Conference No.: 60051
Source: Proceedings of SPIE - The International Society for Optical Engineering v 4562 II 2001. p 593-599
Publication Year: 2001
CODEN: PSISDG ISSN: 0277-786X
Language: English
Document Type: CA; (Conference Article) Treatment: T; (Theoretical)
Journal Announcement: 0211W1
Abstract: ***Contact*** printing has been used for decades in many various lithography ***applications*** in the microelectronic industry. While vacuum ***contact*** printing processes offer sub-***micron*** resolution and high throughput, they often suffer from some important drawbacks ***.One*** of the most common problems is degradation in both resolution and defect density which occurs when the same ***mask*** is used for multiple exposures without frequent ***mask*** cleans. This is largely due to the relatively high ***surface*** energy of both quartz and chrome and the tendency of most photoresists to ***adhere*** to these ***surfaces***. As a result, when a ***mask*** and wafer are pressed into intimate ***contact***, resist will tend to stick to the ***mask*** creating a defect on the wafer, effectively propagating defects to subsequent wafers. In this study, DuPont Teflon registered trademark AF 1601S is used as a ***photomask*** coating and evaluated for its ability

to act as a ***release*** ***agent*** and reduce defects while maintaining resolution for multiple exposures. Teflon registered trademark AF is an amorphous, transparent, low ***surface*** energy, polymeric material that can be spin coated into a ***thin*** ***conformal*** film. Tests have shown that when using an uncoated ***mask*** in vacuum ***contact***, resolution of 0.75 mum dense lines is severely degraded after less than 10 consecutive exposures. However, when the ***mask*** is coated, 0.75 mum dense lines were successfully resolved using vacuum ***contact*** for over 200 exposures without cleaning. In addition, it has been demonstrated that Teflon registered trademark AF coatings impart to a ***mask*** a self-cleaning capability, since particles tend to stick to the photoresist rather than the ***mask***. A coated ***mask***, which was purposefully contaminated with particulates, resolved 0.75 mum dense lines on all but the ***first*** wafer of a series of 25 consecutive exposures. The patented ***mask*** ***release*** layer process has successfully been demonstrated with a ***positive*** novolak resist. Additional data which describes the system chemistry, dilution and coating process, and film morphology are also presented. 8 Refs.

89/7,DS/15 (Item 5 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

06057321 E.I. No: EIP02216955561
Title: Submicrometre bridge electrode arrays for light emitting polymer diodes and photodiodes
Author: Nyberg, Tobias; Zhang, Fengling; Inganas, Olle
Corporate Source: Biomolecular and Organic Electronics Dept. of Physics and Msrmt. Technol. Linkopings Universitet, SE-581 83 Linkoping, Sweden
Source: Nanotechnology v 13 n 2 April 2002. p 205-211
Publication Year: 2002
CODEN: NNOTER ISSN: 0957-4484
Language: English
Document Type: JA; (Journal Article) Treatment: X; (Experimental)
Journal Announcement: 0205W4
Abstract: We have used a method of soft lithography, soft imprinting, to fabricate submicrometre structures to be used as light emitting polymer diodes and photodiodes. Using a silicone rubber replica (stamp) of an optical diffraction grating we transferred the grating pattern to an organic resist layer by placing the stamp in ***conformal*** ***contact*** with the resist. The transferred pattern was subsequently used as an etch mask for the processing of the device. This cheap and fast process, not limited by optical diffraction, was used to fabricate submicrometre structures over large ***areas***, square millimetres. The structures were successfully utilized as light emitting diodes and photodiodes, with device characteristics influenced by the imposed structure. 14 Refs.

89/7,DS/16 (Item 6 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

05309608 E.I. No: EIP99074710412
Title: Patterning electroluminescent materials with feature sizes as small as 5 ***mu*** ***m*** using ***elastomeric*** membranes as ***masks*** for dry ***lift***-***off***
Author: Duffy, David C.; Jackman, Rebecca J.; Vaeth, Kathleen M.; Jensen, Klavs F.; Whitesides, George M.
Corporate Source: Harvard Univ, Cambridge, MA, USA
Source: Advanced Materials v 11 n 7 1999. p 546-552
Publication Year: 1999
CODEN: ADVMEW ISSN: 0935-9648
Language: English
Document Type: JA; (Journal Article) Treatment: X; (Experimental)
Journal Announcement: 9908W3
Abstract: Polydimethylsiloxane membranes were used as ***conformal*** ***masks*** to pattern electroluminescent (EL) materials at feature sizes ranging from 5 ***mu*** ***m*** to 500 ***mu*** ***m***. The dry ***lift*** -***off*** procedure was employed for pattern transfer using two or more membranes. The membranes were well suited for patterning any electroluminescent dye deposited by evaporation and useful in the fabrication of EL devices with features ranging from 10-100 ***mu*** ***m***. They also allowed devices to be fabricated on non-planar ***substrates***. 27 Refs.

89/7,DS/17 (Item 7 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

04618527 E.I. No: EIP97023524847
Title: Using microcontact printing to generate amplitude photomasks on the surfaces of optical fibers: a method for producing in-fiber gratings
Author: Rogers, John A.; Jackman, Rebecca J.; Whitesides, George M.; Wagener, Jefferson L.; Vengsarkar, Ashish M.
Corporate Source: Harvard Univ, Cambridge, MA, USA
Source: Applied Physics Letters v 70 n 1 Jan 6 1997. p 7-9
Publication Year: 1997
CODEN: APPLAB ISSN: 0003-6951
Language: English
Document Type: JA; (Journal Article) Treatment: A; (Applications); X; (Experimental)
Journal Announcement: 9704W1
Abstract: A method is described for generating an amplitude photomask directly on the outside of an optical fiber. Exposure of this printed fiber to UV light produces a grating in the core of the fiber. With this method, the performance characteristics of the grating depend only weakly on the temporal or spatial ***coherence*** properties of the source of UV light and mechanical vibrations of the optics that deliver this light to the fiber. It is believed that the method will be useful for forming in-fiber gratings with wavelengths longer than approx.2 mu m. The formation of long-period fiber grating attenuators by this technique demonstrates its benefits. 19 Refs.

89/7,DS/18 (Item 8 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

04527493 E.I. No: EIP96073260317
Title: ***Removable*** organic antireflection coating
Author: Sturtevant, John L.; Insalaco, Linda J.; Flaim, Tony; Krishnamurthy, Vandana; Meador, James D.; Petersen, John S.; Eckert, Andy
Corporate Source: SEMATECH, Austin, TX, USA
Conference Title: Advances in Resist Technology and Processing XIII
Conference Location: Santa Clara, CA, USA Conference Date: 19960311-19960313
Sponsor: SPIE - Int Soc for Opt Engineering, Bellingham, WA USA
E.I. Conference No.: 22583
Source: Proceedings of SPIE - The International Society for Optical Engineering v 2724 1996.. p 738-746
Publication Year: 1996
CODEN: PSISDG ISBN: 0-8194-2100-6
Language: English
Document Type: CA; (Conference Article) Treatment: X; (Experimental)
Journal Announcement: 9612W2
Abstract: Preliminary studies with Brewer Science CD9 ARC have shown that high-intensity ultraviolet exposure results in significant changes in film properties, including ***thickness***, plasma etch resistance, and develop rate. This process has been studied over a range of temperatures and exposure conditions, and their results are interpreted in terms of competing polymer main chain scission and crosslinking reactions. The process represents a path to improved etch performance, and the possibility exists for use of Brewer ARC in a bi-layer portable ***conformable*** mask resist scheme. 8 Refs.

89/7,DS/19 (Item 9 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

01109557 E.I. Monthly No: EI8204033056 E.I. Yearly No: EI82079691
Title: CHARACTERIZATION OF DEFORMATION PHENOMENA IN POLYMERS BY FOURIER TRANSFORM INFRARED SPECTROSCOPY.
Author: Hsu, S. L.; Burchell, D. J.
Corporate Source: Univ of Mass, Amherst, USA
Source: Organic Coatings and Plastics Chemistry: Preprints of Papers presented at the Meeting of the American Chemical Society, Division of Organic Coatings and Plastics Chemistry v 44, Prepr of Pap Presented at the ACS Natl Meet, 181st, Atlanta, Ga, USA, Mar 29-Apr 3 1981. Publ by ACS, Washington, DC, USA, 1981 p 635-639
Publication Year: 1981
CODEN: OCPCDG ISSN: 0161-214X
Language: ENGLISH
Journal Announcement: 8204

Abstract: In the last few years, a number of studies were carried out showing spectroscopic changes associated with a polymer deformed by external stress. Changes in frequency and intensity have been related to molecular stress, chain axis orientation, viscoelastic behavior and ***conformational*** changes. However, until recently Fourier transform infrared spectroscopy, (FTIR) has been limited to observation of events that are stationary in time, or at least stationary with respect to the measurement time. This report shows how with a Fourier transorm instrument, fast microstructural changes in ***polymers*** can be ***masked*** due to co-adding scans to improve signal to noise ratio. The authors developed a computer controlled device which can be used for stress relaxation, creep, in harmonic deformation experiments in conjunction with a rapid scanning FTIR. This paper discusses the construction of this apparatus, development of the computer software and the structural changes found for heterophane polymers. 11 refs.

89/7,DS/20 (Item 1 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

01963036 ORDER NO: AADAA-I3098404
Spatio-temporal dynamics of corrosion and precipitation systems
Author: Thouvenel-Romans, Stephanie D.
Degree: Ph.D.
Year: 2003
Corporate Source/Institution: The Florida State University (0071)
Major Professor: O. Steinbock
Source: VOLUME 64/07-B OF DISSERTATION ABSTRACTS INTERNATIONAL. PAGE 3300. 188 PAGES

Self-organization of ***coherent*** spatio-temporal patterns occurs in numerous physical, chemical, and biological systems. In particular, electrochemical reactions generate a wealth of examples for this intriguing phenomenon. Patterns arise from the interplay of temporal reaction instabilities and transport processes such as fluid convection, electro-migration, and diffusion. In this work, we study the propagation of electro-dissolution waves, the self-motion of localized corrosion cells and a related reaction-precipitation system.

The iron/nitric acid system has been the subject of numerous studies and shows spontaneous, periodic transitions between an active dissolution and a passive inert state. For a pseudo-***one***-***dimensional*** system, we report the existence of three distinct regions (continuously active, oscillatory and continuously passive) along a cathodic wire under potentiostatic conditions as well as sporadic long-range pulses for lower acid concentrations. Under pseudo-***two***-***dimensional*** and open-circuit conditions, rotating spiral waves of electro-dissolution can form on the ***surface*** of low-carbon steel. Self-adhesive ***polymer*** ***masks*** are employed to determine the critical size of a defect that initiates a global corrosion event.

We also investigate the propagation of corrosion trails or “filiform corrosion” on low-carbon steel samples protected by a

layer of commercial grade acrylic lacquer. From optical data and computer analyses, we determine that filament growth responds to variations in the ***thickness*** of the acrylic film. To control the direction of the growth, we develop a technique to pattern the organic coating using polydimethylsiloxane molds created by soft-lithography. We successfully direct the filiforms along linear and curved paths. Finally, we also report the formation of corrosion tubes from blisters that nucleate in a higher relative humidity environment.

To understand the growth mechanism of corrosion tubes, we examine a simpler reaction-precipitation model, commonly known as “chemical gardens”. A novel injection technique provides control over parameters that are not accessible in the classic system. For the example of cupric sulfate injection into waterglass solution, we identify three distinct growth regimes (jetting, popping and budding) and study their concentration-dependent transitions. These data enabled us to derive an equation that relates the period of the popping events to flow rate and cupric ion concentration.

89/7,DS/21 (Item 2 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

01694774 ORDER NO: AAD99-21513
APPLICATIONS OF ***TWO***- AND THREE-***DIMENSIONAL*** MICROSTRUCTURES FORMED BY SOFT LITHOGRAPHIC TECHNIQUES (MICROREACTOR SYSTEMS, ***ELASTOMERS***)
Author: JACKMAN, REBECCA JANE
Degree: PH.D.
Year: 1999
Corporate Source/Institution: HARVARD UNIVERSITY (0084)
Adviser: GEORGE M. WHITESIDES
Source: VOLUME 60/03-B OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 1102. 307 PAGES

This thesis describes the development of several soft lithographic techniques. Each of these techniques has applications in ***two***- and three-***dimensional*** microfabrication or in the design of microreactor systems. All soft lithographic techniques make use of an ***elastomeric*** element that is formed by casting and curing a prepolymer against a planar ***substrate*** having three-***dimensional*** (3D) relief.

Chapters 1–3 (and Appendices I–VII) describe the use of a soft lithographic technique, microcontact printing (μCP), to produce patterns with ***micron***-scale resolution on both planar and non-planar ***substrates***. Electrodeposition transforms patterns produced by μCP into functional, 3D structures. It is an ***additive*** method that: (i) strengthens the metallic patterns; (ii) increases the conductivity of the structures; (iii) enables high-strain deformations to be performed on the structures; and (iv) welds non-connected structures. Applications for cylindrical microstructures, formed by the combination of μCP and electroplating, are presented.

Some important classes of materials—biological macromolecules,

gels, sol-gels, some polymers, low molecular weight organic and organometallic species—are often incompatible with conventional patterning techniques. Chapters 4 and 5 describe the use of ***elastomeric*** membranes as dry resists or as ***masks*** in dry ***lift***-***off*** to produce simple features as small as 5 &***mu***; ***m*** from these and other materials on both planar and non-planar ***surfaces***. These procedures are “dry” because the membranes ***conformed*** and sealed reversibly to ***surfaces*** without the use of solvents. This technique, for example, produced a simple electroluminescent device. By using ***two*** membranes simultaneously, multicolored, photoluminescent patterns of organic materials were created. Membranes were also used in sequential, dry-***lift*** ***off*** steps to produce patterns with greater complexity.

Chapter 6 (and Appendix XII) demonstrates that the ability to mold ***elastomers*** enables the fabrication of large (≤45 ***cm*** <super>2</super>) arrays of microwells (volumes ≥3 fL/well; densities ≤10<super>7</super> wells/***cm***<super>2 </super>). These microwells can function as vessels for performing chemical reactions—“microreactors”. Discontinuous dewetting is a technique that takes advantage of the interfacial properties of the ***elastomer*** and allows wells to be filled rapidly (typically ∼104 wells/***second***) and uniformly with a ***wide*** range of liquids. Several rudimentary strategies for addressing microwells are investigated including electroosmotic pumping and diffusion of gases.

89/7,DS/22 (Item 3 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

01592677 ORDER NO: AAD97-29014
CHEMICAL MODIFICATION OF ***SURFACES*** WITH HYDROPHILIC POLYMERS (POLY(ETHYLENE GLYCOL))
Author: EMOTO, KAZUNORI
Degree: PH.D.
Year: 1997
Corporate Source/Institution: UNIVERSITY OF ALABAMA IN HUNTSVILLE (0278)
Source: VOLUME 58/04-B OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 2068. 151 PAGES

Neutral hydrophilic polymers are frequently coated onto ***surfaces*** to reduce non-specific adsorption, and to tether biomolecules, ligands and reporter groups. Of the polymers used for such ***applications***, poly(ethylene glycol) (PEG) is the most promising due to its non-toxicity, non-immunogenicity and high stability. In the present dissertation, PEG coatings on quartz ***surfaces*** and associated modifications are studied. The quartz ***surface*** was modified with 3-aminopropyltriethoxysilane (APS), grafted with epoxide derivatized PEG, and tethered with protein. These ***surfaces*** were characterized electrokinetically via electroosmosis determination for the density of ionizable groups and ***thickness*** of the PEG layer. APS coatings were unstable if cured in vacuum at 22$\sp\circ$C. Curing at 190$\sp\circ$C in vacuum yielded stable

APS layers.

PEG grafting was carried out in aqueous solution. The decrease in electroosmosis was commensurate with the grafting density due to the ***surface*** "***masking***" by the ***polymer***. PEG grafting density can be controlled by grafting temperature and solution lyotropic ion composition, but not by pH and grafting time. This indicates that solubility, ***surface*** affinity, and PEG ***conformation*** affect grafting density more than reactivity of epoxide with amine. Unlike many commercial coatings of hydrophilic polymers, PEG coating showed high stability even in high pH solution. Neither the ***removal*** of APS-PEG layers nor the chain cleavage of PEG took place. However, difunctional PEG-epoxide stored in 0.5 M salt pH 11 solution showed significant alteration in electroosmosis due to the oxidation of epoxide into a carboxylic group. Tethering proteins to capillaries through PEG altered electroosmosis profiles corresponding to the charged nature (pI) of protein, implying that tethered proteins are little influenced by substrate ***surface*** charge. Varying the ratio of difunctional PEG-epoxide to methoxy-PEG-epoxide appeared to control the ***surface*** density of tethered protein.

89/7,DS/23 (Item 4 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

01194309 ORDER NO: AADD--93893
A STUDY OF (3) DENDRALENE, ITS SYNTHESIS AND ***APPLICATIONS*** (CROSS LINKING REAGENT)

Author: GILLAM, SUSANNAH M.
Degree: PH.D.
Year: 1990
Corporate Source/Institution: UNIVERSITY OF EDINBURGH (UNITED KINGDOM) (0450)
Source: VOLUME 52/07-B OF DISSERTATION ABSTRACTS INTERNATIONAL. PAGE 3604. 285 PAGES

Available from UMI in association with The British Library. Requires signed TDF.

The synthesis of (3) dendralene (3-methylene-1,4-pentadiene) by chelotropic extrusion of SO$\sb2$ from 3-vinyl-2,5-dihydrothiophene-1,1-dioxide is reported. The six-step synthesis from butadiene sulphone, a readily available reagent, afforded the triene in ca. 20% overall yield.

Contrary to previous reports (3) dendralene is a stable, easily handled, low-boiling liquid, that can be stored for several months with $-$30$\sp\circ$C in the presence of a radical ***inhibitor*** such as galvinoxyl. However, pure samples of (3) dendralene tend to dimerise slowly when left at room temperature. The structural elucidation of this dimer has been determined by derivatisation to an unusual iron dicarbonyl compound.

Spectroscopic investigations into the structure of (3) dendralene itself has shown that it exists in a symmetrical ***conformation*** with the external double bonds deviated 25$\sp\circ$ in and out of the plane.

This finding is in conflict with the structure predicted by theoretical calculations which describes (3) dendralene as a trans butadiene with an orthogonal vinyl group twisted 40$\sp\circ$ out of the plane.

The diene-transmissive nature of (3) dendralene is also investigated by carrying out a number of Diels-Alder cycloaddition reactions with various cyclic and acyclic dienophiles. Its potential for tandem annulations is illustrated by the selective formation of mono- and bis-adducts as well as mixed bis-compound with a variety of dienophiles.

The cross-conjugating properties of (3) dendralene are further exploited in the ***area*** of polymer chemistry. Its incorporation as a cross-linking reagent into polyisoprene caused premature gelling and a general change in the physical properties of the final material. A free radical polymerisation reaction of the precursor, 3-vinyl-2,5-dihydrothiophene-1,1-dioxide, gave rise to a colourless polymer which on heating lost SO$\sb2$, thereby exhibiting excellent potential for its use as a ***masked*** cross-linking ***copolymer***. Other facets of dendralene chemistry including the synthesis of 3-formyl-2,5-dihydrothiophene-1,1-dioxide and (5) dendralene are discussed.

89/7,DS/24 (Item 1 from file: 62)
DIALOG(R)File 62:SPIN(R)

00980837

Fabrication of mid-infrared frequency-selective ***surfaces*** by soft lithography

Paul, Kateri E. ; Zhu, Cheng ; Love, J. Christopher ; Whitesides, George M.

Department of Chemistry and Chemical Biology, Harvard University, 12 Oxford Street, Cambridge, Massachusetts 02138-2902

APPL. OPT.; 40(25),4557-4561 (1 Sep. 2001) CODEN: APOPA

Work Type: APPARATUS; EXPERIMENTAL; METHOD

We describe the fabrication of large areas (4 cm2) of metallic structures or aperture elements that have (approximately) 100-350-***nm*** linewidths and act as frequency-selective ***surfaces***. These structures are fabricated with a type of soft lithography--near-field ***contact*** -mode photolithography--that uses a ***thin*** ***elastomeric*** ***mask*** having topography on its ***surface*** and is in ***conformal*** ***contact*** with a layer of photoresist. The ***mask*** acts as an optical element to create minima in the intensity of light delivered to the photoresist. Depending on the type of photoresist used, lines of, or trenches in, photoresist are formed on the ***substrate*** by exposure, development, and ***lift***-***off***. These ***surfaces*** act as bandpass or bandgap filters in the infrared. (Copyright) 2001 Optical Society of America

89/7,DS/25 (Item 2 from file: 62)
DIALOG(R)File 62:SPIN(R)

00781044
Light-coupling masks for lensless, sub-wavelength optical lithography
Schmid, Heinz ; Biebuyck, Hans ; Michel Olivier J. F., Bruno, Martin
IBM Research Division, Zurich Research Laboratory, 8803 Rueschlikon, Switzerland ; Institute for Field Theory and Microwave Electronics, Swiss Federal Institute of Technology (ETH), 8092 Zurich, Switzerland
APPL. PHYS. LETT.; 72(19),2379-2381 (11 May. 1998) CODEN: APPLA
Work Type: EXPERIMENTAL
Light-coupling masks (LCMs) based on structured organic polymers that make ***conformal*** ***contact*** with a substrate can constitute an amplitude mask for light-based lithographies. The LCM is exposed through its backside, from where the light is differentially guided by the structures towards the substrate. Images of arbitrarily shaped features having ***dimensions*** much smaller than that of the vacuum wavelength of the exposing light are formed in the resist in a 1:1 correspondence to their size in light-guiding ***portions*** of the mask. LCMs allow pattern replication at high resolution and densities over large ***areas*** in photoresist without the need for elaborate projection optics. (Copyright) 1998 American Institute of Physics.

89/7,DS/26 (Item 3 from file: 62)
DIALOG(R)File 62:SPIN(R)

00768481
Generating (approximately) 90 ***nanometer*** features using near-field contact-mode photolithography with an ***elastomeric*** phase ***mask***
Rogers, John A. ; Paul, Kateri E. ; Jackman, Rebecca J. ; Whitesides, George M.
Department of Chemistry and Chemical Biology, Harvard University, Cambridge, Massachusetts 02138
J. VAC. SCI. TECHNOL. B; 16(1),59-68 (Jan. 1998) CODEN: JVTBD
Work Type: METHOD
This article describes a near-field photolithographic method that uses an ***elastomeric*** phase ***mask*** in ***conformal*** contact with photoresist. The method is capable of generating (approximately) 90 ***nm*** lines in commercially available photoresist, using broadband, incoherent light with wavelengths between 330 and 460 ***nm***. Transfer of these patterns into silicon dioxide and gold demonstrates the integrity of the patterned resist. (Copyright) 1998 American Vacuum Society.

89/7,DS/27 (Item 4 from file: 62)
DIALOG(R)File 62:SPIN(R)

00733404
Using an ***elastomeric*** phase ***mask*** for sub-100 ***nm*** photolithography in the optical near field
Rogers, John A. ; Paul, Kateri E. ; Jackman, Rebecca J. ; Whitesides, George M.

Department of Chemistry, Harvard University, Cambridge, Massachusetts 02138
APPL. PHYS. LETT.; 70(20),2658-2660 (19 May. 1997) CODEN: APPLA
Work Type: METHOD
Bringing an ***elastomeric*** phase ***mask*** into ***conformal*** ***contact*** with a layer of photoresist makes it possible to perform photolithography in the near field of the ***mask***. This technique provides an especially simple method for forming features with sizes of 90-100 ***nm*** in photoresist: straight lines, curved lines, and posts, on both curved and planar ***surfaces*** . It combines experimental convenience, new optical characteristics, and applicability to nonplanar ***substrates*** into a new approach to fabrication. Nanowire polarizers for visible light illustrate ***one*** application for this technique.

89/7,DS/28 (Item 5 from file: 62)
DIALOG(R)File 62:SPIN(R)

00118084
Hybrid e-beam/***deep*** UV exposure using portable ***conformable*** masking (PCM) technique
Lin, B. J.; Chang, T. H. P.
IBM Thomas J. Watson Research Center, Yorktown Heights, New York 10598
J. Vac. Sci. Technol.; 16(6),1669-1671 (NOV. 1979) CODEN: JVSTA
CPM: 8004-B-1303
Work Type: EXPERIMENTAL
A ***thin*** dichroic resist or an opaque metal is directly ***applied*** to a ***deep***-UV resist and is delineated with an e-Beam exposure tool conventionally. This intimately ***contacted*** pattern now serves as a portable mask that can be carried with the wafer to a ***deep***-UV blanket exposure station for delineation of the ***deep***-UV resist to produce high aspect ratio images with controlled profiles. In particular, AZ1350J/PMMA and AZ1350J/aluminum/PMMA systems are discussed. Sample results showing submicrometer PMMA images in ***thicknesses*** ranging from 1.6 to 1.9 (***mu***)***m*** using a 0.2 (***mu***)***m*** ***thick*** AZ PCM and 0.3-(***mu***)***m***-***thick*** aluminum PCM are presented.

89/7,DS/29 (Item 1 from file: 94)
DIALOG(R)File 94:JICST-EPlus

04410965 JICST ACCESSION NUMBER: 00A0014459 FILE SEGMENT: JICST-E
Polymer-Enhanced Advanced ***Contact*** Etching(PEACE) with Long-cycle Bias-Modulated Plasma.
CHU C-W (1); AHN T-H (1); KIM J (1); JEONG S-S (1); PARK W-J (1); MOON J-T (1)
(1) Samsung Electronics Co. Ltd., Kyungki-do, Kor
Proc Symp Dry Process, 1999, VOL.21st, PAGE.57-62, FIG.9, REF.7

JOURNAL NUMBER: Y0378AAE
UNIVERSAL DECIMAL CLASSIFICATION: 621.382.002.2 533.9.06
LANGUAGE: English COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Conference Proceeding
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: A new etching technique named PEACE which enables both high mask selectivity and ***deep*** ***contact*** etching with ***thin*** resist mask was proposed. The PEACE process is consisted by periodic 2-steps etching process having oxide etching step with high bias power and the fluorocarbon polymer deposition step with low bias power. At ***first*** step, CFx polymer is deposited with low bias condition on both mask and ***contact*** bottom ***surface*** with relatively bad ***conformality***(large difference of the ***polymer*** ***thickness*** on the ***mask*** and on the bottom ***surface***). And next, the high bias power is ***applied*** to etch out the ***thin*** bottom polymer and oxide down to a desired ***depth*** while top polymer is still acting as a masking layer, and this gives rise to the higher selectivity of oxide to photo-resist. By simulating and investigating the characteristics of etching process in PEACE, it is found that the polymer ***conformality*** is governed by neutral shadowing, ***surface*** adsorption rate of CxFy polymer ruled by sticking probability, aspect-ratio, and ion energy etc. By optimum combination of etching and deposition amount, a small and ***deep*** ***contact*** etching with ***thin*** photo-resist was possible without any shortages of mask ***thickness*** and etch-stop where the mask selectivity improved from 6 to 20. From these results, PEACE process is thought to be ***one*** of promising solution for a high aspect-ratio ***contact*** etching in next generation devices. (author abst.)

89/7,DS/30 (Item 2 from file: 94)
DIALOG(R)File 94:JICST-EPlus

01120587 JICST ACCESSION NUMBER: 90A0656497 FILE SEGMENT: JICST-E
Expanding uses of flexible board. Processing of FPC by an excimer laser.
KONEYAMA TAKUMI (1); HAYASHI TAKEJI (2)
(1) Seputo; (2) YTNRisachi
Erekutoronikusu Jisso Gijutsu(Electronic Packaging Technology), 1990, VOL.6,NO.7, PAGE.33-37, FIG.9, TBL.2
JOURNAL NUMBER: L0322AAG ISSN NO: 0911-3053
UNIVERSAL DECIMAL CLASSIFICATION: 621.3.049.75
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication
ABSTRACT: Machining, etching, working and processing of FPC which uses an excimer laser were introduced. Processing accuracy of under 1 .***MU*** .***m*** can be obtained, since the emission wavelength is in the ultraviolet region. The ***conformal*** mask technique which opens an opening in a vapor attached to metal on the ***surface*** of a

processed object and processes the ***resin*** layer and the ***mask*** image technique which reduces a lens using a pattern mask and processes by a laser beam were introduced as well as FPC processing examples.

89/7,DS/31 (Item 1 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

01892187 20040902522
Three-***dimensional*** nanofabrication with rubber stamps and ***conformable*** photomasks
(Dreidimensionale Nanoherstellung mir ***Gummistempeln*** und konformierbaen ***Photomasken***)
Jeon, Seokwoo; Menard, Etienne; Park, Jang-Ung; Maria, Joana; Meitl, Matthew; Zaumseil, Jana; Rogers, John A
University of Illinois at Urbana-Champaign, US; Bell Laboratory, Lucent Technol., Murray Hill, US
Advanced Materials, Weinheim, v16, n15, pp1368-1373, 2004
Document type: journal article Language: English
Record type: Abstract
ISSN: 0935-9648

ABSTRACT:
This article briefly describes ***two*** recently developed soft-lithographic techniques that can be used to fabricate complex, well-defined three-***dimensional*** (3D) nanostructures. The ***first*** relies on the single or multilayer transfer of ***thin*** solid 'ink' coatings from high-resolution rubber stamps. The ***second*** uses these stamps as ***conformable*** phase masks for ***proximity*** field nanopatterning of ***thin*** layers of transparent photopolymers. Although both techniques use the same pattern-transfer elements, they rely on completely different physical principles and they provide complementary patterning capabilities. The operational simplicity of the techniques, their ability to pattern large ***areas*** quickly, and the flexibility in the geometry of structures that can be formed with them suggest general utility for 3D nanomanufacturing.

89/7,DS/32 (Item 2 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

01538465 20010700649
Yielding behavior of low expansion invar alloy at elevated temperature
(Verformungsverhalten von Invar-Legierungen mit niedriger Waermedehnung bei erhoehter Temperatur)
Nan, J; Li, G; Xu, K
Xian Jiaotong University, Shaanxi, China
Journal of Materials Processing Technology, v114, n1, pp36-40, 2001
Document type: journal article Language: English
Record type: Abstract

ISSN: 0924-0136

ABSTRACT:
An invar alloy (Fe, 36.28 % Ni, 0.33 % Mn, 0.009 % C, 0.1 % Si, 0.005 % P, 0.004 % S) is used for a shadow mask in a color picture or display tube (CPT or CDT) for its low coefficient of thermal expansion (1.1 x 10(exp -6)/degree C in the range of room temperature to 100 degrees C), but in practice distortion or deformation of the shadow mask sometimes occurs after mold-pressing formation. This implies that the formation facilities and parameters do not ***conform*** with the mechanical response of the material, and that the mechanical performance of the material has not yet been clearly understood. Using strain gages (type BB120-4AA250), tensile tests were carried out at elevated temperatures to determine the yielding behavior of the invar alloy. The main results show that the yield stress decreases by 55 % with increasing heating temperature from about 20 to 180 degrees C and then remains stable fluctuating at 120 to 130 MPa for the yield strength and 300 to 320 MPa for the ultimate strength in the temperature range of 180 to 220 degrees C for specimens pre-annealed at temperatures ranging from 790 to 850 degrees C. The yield strength and ultimate strength do not roughly vary with the change of annealing temperature from 790 to 850 degrees C at a fixed heating temperature, and this will provide a ***wider*** range of selection for the annealing parameters prior to the formation of the shadow ***mask***. The ***elastic*** modulus is not so sensitive to annealing and heating treatment and thus shows little difference. Its value fluctuates within 1.41 to 1.50 x 10(exp 5) MPa for the specimens annealed at 790 to 850 degrees C. The plastic elongation at the same time increases with the annealing and heating temperatures, but a lower temperature annealing treatment is, as for the formation of the shadow mask, conducive to achieving a promising combination of strength, ductility, hardness and graininess so as to meet the needs of formation at 200 degrees C. Thus, the pressing force and deformation temperatures can be evaluated as important parameters controlling the formation of the shadow mask. The yield stresses measured by the strain gage accord roughly with those by the extensometer, so the strain gage is available for the determination of yield stress, and prevails over the extensometer in engineering measurement.

89/7,DS/33 (Item 3 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

01313341 E99050856267
Patterning electroluminescent materials with feature sizes as small as 5 micron using ***elastomeric*** membranes as ***masks*** for dry ***lift***-***off***
(Strukturierung elektrolumineszenter Werkstoffe mit Strukturgroessen bis zu 5 Mikrometer mittels ***Elastomermembranen*** als trocken abloesbare ***Masken***)
Duffy, DC; Jackman, RJ; Vaeth, KM; Jensen, KF; Whitesides, GM
Harvard University, Cambridge, USA; Massachusetts Inst. of Technol., Cambridge, USA

Advanced Materials, Weinheim, v11, n7, pp546-552, 1999
Document type: journal article Language: English
Record type: Abstract
ISSN: 0935-9648

ABSTRACT:
Fuer das Aufdampfen von mikrostrukturierten elektrolumineszenten organischen Duennschichten stellten die Autoren ***Elastomermembranen*** als ***Masken*** her, mit denen Strukturen von 5 bis 500 Mikrometer erzeugt werden koennen. Dazu wird zunaechst eine duenne Schicht des Vorpolymers Polydimethylsiloxan (PDMS) durch Spin-Coating auf eine Matrix aufgebracht und dann photolithographisch strukturiert. Die Membrandicke wird durch den Photolack auf 3 bis 100 Mikrometer begrenzt. Membranen mit Dicken ueber 40 Mikrometer koennen leicht mit Pinzetten mehrfach verwendet werden und ergeben auch grossflaechig einen dichten Abschluss zum Substrat ohne elastische Membrandehnungen bzw. Musterverzerrungen. Mit diesen Elastomermembranen wurden loecherleitendes N,N'-Diphenyl-N,N'-bis(3-methylphenyl)-1-1'-biphenyl-4,4'-diamin (TPD) und Tris(8-hydroxychinolin)aluminium (Alq3, ein Emitter) zwischen einer ITO-Anode und einer Al-Kathode abgeschieden. Die Strom-Spannungs-Kennlinien zeigen fuer diese Elektrolumineszenzanzeigen mit kreisfoermigen Loechern (50 Mikrometer Durchmesser und Abstand) eine Schwellenspannung von ca. 15 V und eine Leuchtdichte von 160 Cd/m(exp 2). Das Licht entsteht dabei allein an der durch TPD erzeugten Doppelschicht. Durch Verwendung von zwei Membranen oder Abloesung und Verschiebung einer Membran koennen auch mehrfarbige Elektrolumineszenzanzeigen praepariert werden.

89/7,DS/34 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal

15465400 PASCAL Number: 02-0159153
Fabrication of mid-infrared frequency-selective surfaces by soft lithography
PAUL Kateri E; ZHU Cheng; LOVE J Christopher; WHITESIDES George M
Department of Chemistry and Chemical Biology, Harvard University, 12 Oxford Street, Cambridge, Massachusetts 02138-2902
Journal: Applied optics, 2001-09-01, 40 (25) 4557-4561
ISSN: 0003-6935 CODEN: APOPAI Availability: INIST-6309
Document Type: P (Serial) ; A (Analytic)
Country of Publication: United States
Language: English
We describe the fabrication of large areas (4 cm2) of metallic structures or aperture elements that have similar 100-350-nm linewidths and act as frequency-selective surfaces. These structures are fabricated with a type of soft lithography-near-field contact-mode photolithography-that uses a thin ***elastomeric*** ***mask*** having topography on its surface and is in conformal contact with a layer of photoresist. The mask acts as an optical element to create minima in the intensity of light delivered to the photoresist. Depending on the type of photoresist used, lines of, or trenches in, photoresist are formed on the substrate by exposure,

development, and ***lift***-***off*** . These surfaces act as bandpass or bandgap filters in the infrared. (c) 2001 Optical Society of America

89/7,DS/35 (Item 2 from file: 144)
DIALOG(R)File 144:Pascal

14528981 PASCAL Number: 00-0193722
Patterning electroluminescent materials with feature sizes as small as 5 mu m using ***elastomeric*** membranes as ***masks*** for dry ***lift***-***off***
DUFFY D C; ***JACKMAN R J***; VAETH K M; ***JENSEN K F***; ***WHITESIDES G M***
Harvard Univ, Cambridge MA, United States
Journal: Advanced Materials, 1999, 11 (7) 546-552
ISSN: 0935-9648 Availability: INIST-22427
Number of Refs.: 27 Refs.
Document Type: P (Serial) ; A (Analytic)
Country of Publication: Germany
Language: English
Polydimethylsiloxane membranes were used as conformal ***masks*** to pattern electroluminescent (EL) materials at feature sizes ranging from 5 mu m to 500 mu m. The dry ***lift***-***off*** procedure was employed for pattern transfer using two or more membranes. The membranes were well suited for patterning any electroluminescent dye deposited by evaporation and useful in the fabrication of EL devices with features ranging from 10-100 mu m. They also allowed devices to be fabricated on non-planar substrates.

89/7,DS/36 (Item 3 from file: 144)
DIALOG(R)File 144:Pascal

14380369 PASCAL Number: 00-0033569
Microstereolithography using a dynamic mask generator and a non-***coherent*** visible light source
Design, test, and microfabrication of MEMS and MOEMS : Paris, 30 March - 1 April 1999
MONNERET S; LOUBERE V; CORBEL S
COURTOIS Bernard, ed; CRARY Selden B, ed; EHRFELD Wolfgang, ed; FUJITA Hiroyuki, ed; KARAM Jean Michel, ed; MARKUS Karen, ed
Departement de Chimie Physique des Reactions, ENSIC, 1 rue Grandville, BP 451 , 54001 Nancy, France
CNRS. Techniques de l'informatique et de la microelectronique pour l'architecture d'ordinateurs, Grenoble, France.; International Society for Optical Engineering, Bellingham WA, United States.
Design, test, and microfabrication of MEMS and MOEMS. Conference (Paris FRA) 1999-03-30

Journal: SPIE proceedings series, 1999, 3680 (p.1) 553-561
ISBN: 0-8194-3154-0 ISSN: 1017-2653 Availability: INIST-21760; 354000080104400610
Number of Refs.: 26 reference
Document Type: P (Serial); C (Conference Proceedings) ; A (Analytic)
Country of Publication: United States
Language: English

Laser stereolithography deals with the manufacture of three-***dimensional*** objects that are made by space-resolved laser-induced polymerization. In order to obtain three ***dimensional*** micro-objects, we developed a new microstereolithography apparatus based on the use of a dynamic mask generator which allows the manufacture of a complete layer by only ***one*** irradiation, the part being manufactured layer by layer. This process is composed of a broad-band visible light source, that leads to the elimination of speckle effects resulting from the conventional use of a laser beam, and of a liquid crystal display as the dynamic mask generator. A lateral resolution of 2 ***mu*** ***m*** has been demonstrated, and some examples of high aspect ratio micro-objects are presented.

89/7,DS/37 (Item 4 from file: 144)
DIALOG(R)File 144:Pascal

14261989 PASCAL Number: 99-0465713
Using elastomeric membranes as dry resists and for dry lift-off
JACKMAN R J; DUFFY D C; CHERNIAVSKAYA O; ***WHITESIDES G M***
Department of Chemistry and Chemical Biology, Harvard University, 12 Oxford Street, Cambridge, Massachusetts 02138, United States
Journal: Langmuir, 1999, 15 (8) 2973-2984
ISSN: 0743-7463 CODEN: LANGD5 Availability: INIST-20642; 354000083555480530
Number of Refs.: 36 reference
Document Type: P (Serial) ; A (Analytic)
Country of Publication: United States
Language: English

Elastomeric membranes that contained regular arrays of well-defined holes were formed by spin-coating a prepolymer onto a photolithographically defined master. These membranes were used as dry resists or as ***masks*** in dry lift-off to produce simple features as small as 5 mu m on both planar and nonplanar surfaces. These procedures were "dry" because the membranes conformed and sealed reversibly to surfaces: no solvent was required either to deposit the membrane or to remove it from the substrate. A variety of materials, some of which would be difficult to pattern using conventional methods, were patterned using this technique. These materials included metals, sol-gels, hydrogels, biological macromolecules, and organometallic molecules. The membranes were used in sequential, dry-lift off steps to produce structures with greater complexity than those generated with a single membrane.

89/7,DS/38 (Item 5 from file: 144)
DIALOG(R)File 144:Pascal

14219277 PASCAL Number: 99-0420325
Microstereolithographie utilisant un ecran generateur de masques
Developpement rapide de produit : avancees methodologiques, techniques et logicielles : de la retro-conception a l'outillage de pre-serie
(Stereolithography using a mask-generator screen)
LOUBERE V; MONNERET S; CORBEL S
BERNARD Alain, ed
Departement de Chimie Physique des Reactions, UMR 7630 CNRS, INPL/Ecole Nationale Superieure des Industries Chimiques, 1, rue Grandville, BP 451, 54001 Nancy, France
CRAN, Vandoeuvre-les-Nancy, France
Association Francaise de Prototypage Rapide, France.
Assises Europeennes du Prototypage Rapide, 7 (Paris FRA) 1998-11-20
Journal: Revue internationale de CFAO et d'informatique graphique, 1998, 13 (4-6) 31-43
ISSN: 1266-0175 Availability: INIST-21639; 354000083912870030
Number of Refs.: 12 reference
Document Type: P (Serial); C (Conference Proceedings) ; A (Analytic)
Country of Publication: France
Language: French Summary Language: English
L'extension de la stereolithographie au domaine de la microfabrication apparait comme un procede prometteur pour la fabrication de micro-objets en trois ***dimensions*** et presente de nombreux interets : de petits objets reellement tridimensionnels peuvent etre obtenus avec des temps de fabrication faibles, sans etape d'assemblage et sans limitation de forme. Nous avons donc mis au point un montage de microstereolithographie (mu SL) base sur l'utilisation d'un ecran generateur de masques et une source de lumiere visible non ***coherente*** . Actuellement, nous commencons a fabriquer differents petits objets en 3D composes d'un nombre important de couches. L'insertion de fils en alliage a memoire de forme dans ces structure polymeres permettrait de fabriquer des microactionneurs utilisables pour des ***applications*** en microrobotique.

89/7,DS/39 (Item 6 from file: 144)
DIALOG(R)File 144:Pascal

13538913 PASCAL Number: 98-0239727
Light-coupling masks for lensless, sub-wavelength optical lithography
SCHMID Heinz; BIEBUYCK Hans; MICHEL Bruno; MARTIN Olivier J F
IBM Research Division, Zurich Research Laboratory, 8803 Ruschlikon,

Switzerland; Institute for Field Theory and Microwave Electronics, Swiss Federal Institute of Technology (ETH), 8092 Zurich, Switzerland
Journal: Applied physics letters, 1998-05-11, 72 (19) 2379-2381
ISSN: 0003-6951 CODEN: APPLAB Availability: INIST-10020
Document Type: P (Serial) ; A (Analytic)
Country of Publication: United States
Language: English
Light-coupling masks (LCMs) based on structured organic polymers that make ***conformal*** ***contact*** with a substrate can constitute an amplitude mask for light-based lithographies. The LCM is exposed through its backside, from where the light is differentially guided by the structures towards the substrate. Images of arbitrarily shaped features having ***dimensions*** much smaller than that of the vacuum wavelength of the exposing light are formed in the resist in a 1:1 correspondence to their size in light-guiding ***portions*** of the mask. LCMs allow pattern replication at high resolution and densities over large ***areas*** in photoresist without the need for elaborate projection optics. (c) 1998 American Institute of Physics.

89/7,DS/40 (Item 7 from file: 144)
DIALOG(R)File 144:Pascal

13484530 PASCAL Number: 98-0182022
Generating similar 90 ***nanometer*** features using near-field contact-mode photolithography with an ***elastomeric*** phase ***mask***
ROGERS John A; PAUL Kateri E; ***JACKMAN Rebecca J***; ***WHITESIDES George M***
Department of Chemistry and Chemical Biology, Harvard University, Cambridge, Massachusetts 02138
Journal: Journal of vacuum science & technology. B. Microelectronics and nanometer structures. Processing, measurement and phenomena, 1998-01, 16 (1) 59-68
ISSN: 1071-1023 CODEN: JVTBD9 Availability: INIST-11992 B
Document Type: P (Serial) ; A (Analytic)
Country of Publication: United States
Language: English
This article describes a near-field photolithographic method that uses an ***elastomeric*** phase ***mask*** in ***conformal*** contact with photoresist. The method is capable of generating similar 90 ***nm*** lines in commercially available photoresist, using broadband, incoherent light with wavelengths between 330 and 460 ***nm***. Transfer of these patterns into silicon dioxide and gold demonstrates the integrity of the patterned resist. (c) 1998 American Vacuum Society.

89/7,DS/41 (Item 8 from file: 144)
DIALOG(R)File 144:Pascal

13378870 PASCAL Number: 97-0564265
Using an elastomeric phase ***mask*** for sub-100 nm photolithography in the optical near field
ROGERS John A; PAUL Kateri E; ***JACKMAN Rebecca J***; ***WHITESIDES George M***
Department of Chemistry, Harvard University, Cambridge, Massachusetts 02138
Journal: Applied physics letters, 1997-05-19, 70 (20) 2658-2660
ISSN: 0003-6951 CODEN: APPLAB Availability: INIST-10020
Document Type: P (Serial) ; A (Analytic)
Country of Publication: United States
Language: English
Bringing an elastomeric phase ***mask*** into conformal contact with a layer of photoresist makes it possible to perform photolithography in the near field of the ***mask***. This technique provides an especially simple method for forming features with sizes of 90-100 nm in photoresist: straight lines, curved lines, and posts, on both curved and planar surfaces. It combines experimental convenience, new optical characteristics, and applicability to nonplanar substrates into a new approach to fabrication. Nanowire polarizers for visible light illustrate one application for this technique. (c) 1997 American Institute of Physics.

89/7,DS/42 (Item 9 from file: 144)
DIALOG(R)File 144:Pascal

13367460 PASCAL Number: 97-0552854
Using microcontact printing to generate amplitude ***photomasks*** on the surfaces of optical fibers: A method for producing in-fiber gratings
ROGERS John A; ***JACKMAN Rebecca J***; ***WHITESIDES George M***; WAGENER Jefferson L; VENGSARKAR Ashish M
Department of Chemistry, Harvard University, Cambridge, Massachussetts 02138; Optical Fiber Research, Bell Laboratories, Lucent Technologies, Murray Hill, New Jersey 07974
Journal: Applied physics letters, 1997-01-06, 70 (1) 7-9
ISSN: 0003-6951 CODEN: APPLAB Availability: INIST-10020
Document Type: P (Serial) ; A (Analytic)
Country of Publication: United States
Language: English
This letter describes a method for producing in-fiber gratings that reduces the effects of mechanical and optical instabilities limiting other methods. In this technique, opaque lines formed on the outside of the fiber using a procedure known as microcontact printing, serve as an amplitude ***photomask*** for exposure to ultraviolet light. Long-period fiber optic attenuators formed by ths technique demonstrate its advantages. (c) 1997 American Institute of Physics.

89/7,DS/43 (Item 1 from file: 323)
DIALOG(R)File 323:RAPRA Rubber & Plastics

00792561
TITLE: PRINTING, MOLDING, AND NEAR-FIELD PHOTOLITHOGRAPHIC METHODS FOR PATTERNING ORGANIC LASERS, SMART PIXELS AND SIMPLE CIRCUITS
AUTHOR(S): Rogers J A; Bao Z; Meier M; Dodabalapur A; Schueller O J A; Whitesides G M
CORPORATE SOURCE: Bell Laboratories; Harvard University
SOURCE: Synthetic Metals; 115, Nos.1-3, 1st Nov.2000, p.5-11
ISSN: 0379-6779
JOURNAL ANNOUNCEMENT: 200102 RAPRA UPDATE: 200101
DOCUMENT TYPE: Journal Article
LANGUAGE: English
SUBFILE: (R) RAPRA
ABSTRACT: Several 'soft lithographic' techniques that use rubber stamps, moulds and ***conformable*** photomasks for micro- and nanofabrication are described. It is shown that these methods provide low cost routes to patterning for ***applications*** in organic electronics and integrated optics. Brief reports are presented on some of the authors' recent work on roller printing of organic transistors and related circuitry for transistors, organic 'smart pixels' and complementary inverters that had critical ***dimensions*** as small as 1 micrometre, on nanomoulding of ***first*** and third order distributed feedback, distributed Bragg reflector and photonic crystal resonators for plastic lasers that had narrow emission profiles in the visible range, and on fabrication of low voltage organic transistors and inverter circuits with 0.1 micrometre ***channels*** formed using low cost near-field photolithographic methods. 39 refs. (European Materials Research Society, Strasbourg, France, June 1999)

89/7,DS/44 (Item 2 from file: 323)
DIALOG(R)File 323:RAPRA Rubber & Plastics

00790839
TITLE: METHOD AND SPRAY MOULD ASSEMBLY FOR MANUFACTURING AN ***ELASTOMERIC*** SKIN OF AT LEAST TWO ***ELASTOMERIC*** MATERIALS AND SUCH ***ELASTOMERIC*** SKIN
AUTHOR(S): De Winter H
CORPORATE SOURCE: Recticel
PATENT NUMBER: US 6071619 A
PATENT DATE: 20000606
PATENT COUNTRY/KIND CODE: US A
APPLICATION NUMBER: US 750175 (US 750175-1997)
APPLICATION DATE: 19970317
JOURNAL ANNOUNCEMENT: 200101 RAPRA UPDATE: 200025
DOCUMENT TYPE: Patent

LANGUAGE: English
SUBFILE: (R) RAPRA
ABSTRACT: In the method according to the invention the ***elastomeric*** skin is manufactured in a mould assembly having a mould ***surface***, a portion of which is ***shielded*** off by means of a ***mask***, a first ***elastomeric*** material is sprayed on this mould ***surface*** , the ***mask*** is ***removed***, and a second ***elastomeric*** material is sprayed on said portion of the mould ***surface***. The edges of the ***mask*** are placed on top of upstanding edges of the mould ***surface*** so that the transition between both ***elastomeric*** materials is achieved on these upstanding edges, i.e. in an outer recess of the ***elastomeric*** skin resulting in an aesthetic visual parting line. According to a further important aspect, the edges of the ***mask*** are maintained at a distance from the mould ***surface*** such as to avoid ***contact*** between the layer of first ***elastomeric*** material sprayed onto the mould ***surface*** and the ***mask***.

89/7,DS/45 (Item 3 from file: 323)
DIALOG(R)File 323:RAPRA Rubber & Plastics

00740300
TITLE: PATTERNING ELECTROLUMINESCENT MATERIALS WITH FEATURE SIZES AS SMALL AS 5 MICROMETERS USING ***ELASTOMERIC*** MEMBRANES AS ***MASKS*** FOR DRY ***LIFT***-***OFF***
AUTHOR(S): ***Duffy D C***; ***Jackman R J***; Vaeth K M; ***Jensen K F***; ***Whitesides G M***
CORPORATE SOURCE: Harvard University; Massachusetts,Institute of Technology
SOURCE: Advanced Materials; 11, No.7, 7th May 1999, p.546-52
ISSN: 0935-9648
CODEN: ADVMEW JOURNAL ANNOUNCEMENT: 199910 RAPRA UPDATE: 199918
DOCUMENT TYPE: Journal Article
LANGUAGE: English
SUBFILE: (R) RAPRA
ABSTRACT: High resolution displays require simple, reliable methods to pattern electroluminescent materials. A report is given of the fabrication of soft, elastomeric membranes containing holes with diameters ranging from 5 to 50 micrometers. Using two membranes, multicolour photoluminescent patterns of organic materials was demonstrated using a solvent-free, non-photolithographic method. 27 refs.

89/7,DS/46 (Item 4 from file: 323)
DIALOG(R)File 323:RAPRA Rubber & Plastics

00651760
TITLE: FULLER ACQUIRES EPOXIES, RESINS FROM HEXCEL
SOURCE: Adhesives Age; 40, No.8, July 1997, p.38/40

ISSN: 0001-821X
CODEN: ADHAAO JOURNAL ANNOUNCEMENT: 199712 RAPRA UPDATE: 199723
DOCUMENT TYPE: Journal Article
LANGUAGE: English
SUBFILE: (R) RAPRA
ABSTRACT: H.B. Fuller is reported to have expanded its product line to include PU castable elastomers and a broader line of epoxy resins for the general industrial marketplace. The Epolite and Uralite trademarked products, acquired from Hexcel, are being manufactured and marketed through the Engineered Systems Business Unit of Fuller's North American Adhesives, Sealants and Coatings Group. Epolite products are ***dimensionally*** stable epoxies used in electrical and many other general industrial applications. They include ***surface*** coats, laminating resins, casting compounds, filament winding systems, adhesives and pastes, plus systems for the potting and encapsulation of electrical/electronic components. Uralite PU resins include room-temperature cure casting compounds for general industrial use, as well as elevated-temperature cure casting compounds for applications where high performance is required. They include adhesives and pastes, ***conformal*** coatings, cast ***elastomers*** and ***maskants***. The company says that the Epolite and Uralite lines expand its technologies beyond the core H.B. Fuller adhesives, sealants and coatings that its is known for; they enable it to offer customers a diverse product line to meet more of their manufacturing needs. This abstract includes all the information contained in the original article.

89/7,DS/47 (Item 5 from file: 323)
DIALOG(R)File 323:RAPRA Rubber & Plastics

00594053
TITLE: FLEXIBLE MASKING TAPE
AUTHOR(S): Huber M J
CORPORATE SOURCE: Quality Manufacturing Inc.
PATENT NUMBER: US 5464692 A
PATENT DATE: 19951107
PATENT COUNTRY/KIND CODE: US A
APPLICATION NUMBER: US 78578 (US 78578-1993)
APPLICATION DATE: 19930617
JOURNAL ANNOUNCEMENT: 199609 RAPRA UPDATE: 199617
DOCUMENT TYPE: Patent
LANGUAGE: English
SUBFILE: (R) RAPRA
ABSTRACT: A removable masking tape suitable for protecting a surface on a substrate having irregular curvatures and contours contains a polymeric tape, which is flexible and deformable to ***conforming*** to the contour or curvature of the surface. After the masking tape has been applied to the surface of the substrate, the tape is capable of maintaining the contour and curvature in the position it is applied over time without departure.

89/7,DS/48 (Item 6 from file: 323)
DIALOG(R)File 323:RAPRA Rubber & Plastics

00306540
TITLE: MULTILAYER RESIST SYSTEMS - PAST AND PRESENT, PROCESSING AND PHYSICS
AUTHOR(S): Lin B J
CORPORATE SOURCE: IBM T.J.WATSON RESEARCH CENTER
CONFERENCE PROCEEDINGS: Polymer Preprints
SOURCE: 26, No.2, Sept.1985, p.331-2
JOURNAL ANNOUNCEMENT: 198605 RAPRA UPDATE: 198607
DOCUMENT TYPE: Conference Papers
LANGUAGE: English
ABSTRACT: The development of multilayer resist systems, which gave a high-thermal-stability ***lift***-***off*** profile where the resist image at the top was larger than at the bottom, was reviewed with discussion of the integrated circuit processing steps involved for a variety of systems. The portable ***conformable*** mask and the optical diffraction and reflection involved were considered. The ***thickness*** of the imaging layer was carefully chosen for an optimum overall lithography-limited yield. 9 refs.

89/7,DS/49 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO

07797317 **Image available**
THICK FILM PRINTING SQUEEGEE AND METHOD FOR FORMING OF ***THICK*** PRINTING PATTERN USING THAT

PUB. NO.: 2003-291302 [JP 2003291302 A]
PUBLISHED: October 14, 2003 (20031014)
INVENTOR(s): SEKIYA KATSUHIRO
SATO TOMIO
APPLICANT(s): NGK SPARK PLUG CO LTD
APPL. NO.: 2002-097558 [JP 200297558]
FILED: March 29, 2002 (20020329)

ABSTRACT

PROBLEM TO BE SOLVED: To provide a ***thick*** film printing squeegee which is excellent in durability of a slide ***surface*** on a printing ***mask*** component, easy and economical in exchange at arrival of life and can precisely carry out level filling of paste onto the printing ***mask*** component.

SOLUTION: An ***elastic*** slide component 50 of a squeegee 48 abuts onto an upper ***surface*** of the printing ***mask*** component by using a part of a cylindrical outer peripheral ***surface*** as a slide ***surface*** 50m and slides on the printing ***mask*** component 15 in a direction

crossing an axis of itself under that state. Pressure pinch holding components 51, 54 are arranged so that each longitudinal direction ***conforms*** to an axial direction of the elastic slide component 50 and fastened with a fastening component 154, so as to generate a pressure pinch holding force to the elastic slide component 50. Further, the pressure pinch holding components 51, 54 abut axially to the outer peripheral ***surface*** of the elastic slide component 50 at edge parts 52r, 53r of a side near a body to be printed and project a part forming the slide ***surface*** 50m of the elastic slide component 50 to the body to be printed from the edge parts 52r, 55r. A distance t between the edge parts 52r and 55r of respective pressure pinch components 51, 54 abutting to the outer peripheral ***surface*** of the elastic slide component 50 is set to be larger than a projected height h of the elastic slide component 50 from the parts 52r, 55r.

89/7,DS/50 (Item 2 from file: 347)
DIALOG(R)File 347:JAPIO

04161044
FORMING METHOD FOR DOUBLE-SIDED CIRCUIT BOARD

PUB. NO.: 05-152744 [JP 5152744 A]
PUBLISHED: June 18, 1993 (19930618)
INVENTOR(s): HIRAKAWA TADASHI
APPLICANT(s): TEIJIN LTD [000300] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 03-335947 [JP 91335947]
FILED: November 27, 1991 (19911127)

ABSTRACT

PURPOSE: To precisely form circuits on a double-sided board and a multilayered board by an easy means.

CONSTITUTION: In a both-sided copper clad board wherein both reinforcing material and impregnating resin are composed of organic material, fine ***holes*** are formed in copper of the ***surface***. This ***surface*** is used as a ***conformal*** ***mask***, and a ***resin*** layer is etched by using excimer laser. While a rear copper foil is left, plating is performed from the ***surface*** to the inside of the rear copper foil, thereby obtaining electric continuity from the ***surface*** to the rear.

89/7,DS/51 (Item 3 from file: 347)
DIALOG(R)File 347:JAPIO

03642025 **Image available**
OPTICAL THREE-***DIMENSIONALLY*** SHAPING METHOD

PUB. NO.: 04-007125 [JP 4007125 A]
PUBLISHED: January 10, 1992 (19920110)
INVENTOR(s): YAO YUKINOBU
APPLICANT(s): SANYO ELECTRIC CO LTD [000188] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 02-108503 [JP 90108503]
FILED: April 24, 1990 (19900424)

ABSTRACT

PURPOSE: To obtain the desired three ***dimensional*** shape in a short period of time by a method wherein a mask having a slit, the ***length*** of the aperture of which is continuously changeable, is ***moved*** normal to the slit, when light beam is irradiated through an exposure ***mask*** to liquid ***photo***-setting ***resin***.

CONSTITUTION: The horizontal cross-***sectional*** shape of a ***first*** layer is produced on a vertically ***moving*** stage 7 by setting liquid photo-setting resin 2 by its ***thickness*** to be set at ***one*** exposure time through the sinking of the vertically ***moving*** stage 7, which is ***movable*** to the Z-direction, by the ***thickness*** of the resin to be set in ***one*** exposure time in the liquid phot-setting resin 2 and the synchronous actuation of a slit ***moving*** device 4 and slit adjusting plates 4a as an exposure mask so as to ***conform*** to the cross-***sectional*** shaft of the desired solid under the irradiation of ultraviolet light to the resin. Next, under the state that the vertically ***moving*** stage 7 is sunken further by the ***thickness*** of the resin to be set in ***one*** exposure time, the horizontal cross-***sectional*** shape of a ***second*** layer is produced on the ***first*** set resin layer by setting liquid photo-setting resin 2 by its ***thickness*** to be set in ***one*** exposure time. By repeating the similar procedure as described above, many set resin layers are piled up, resulting in easily obtaining the desired three-***dimensional*** shape 9 in a short period of time.

89/7,DS/52 (Item 4 from file: 347)
DIALOG(R)File 347:JAPIO

03261047 **Image available**
PHOTOMASK

PUB. NO.: 02-236547 [JP 2236547 A]
PUBLISHED: September 19, 1990 (19900919)
INVENTOR(s): KIYAMA MAKOTO
SHIRAKAWA FUTATSU
APPLICANT(s): SUMITOMO ELECTRIC IND LTD [000213] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 01-018999 [JP 8918999]
FILED: January 28, 1989 (19890128)

ABSTRACT
PURPOSE: To form exact patterns over the entire ***surface*** of a wafer by essentially forming the ***photomask*** of a synthetic ***resin*** having the resilience to allow the resin to ***conform*** to the curve on the ***surface*** of a resist.

CONSTITUTION: The resist 2 is ***applied*** on the wafer 1. The wafer 1 and the resist 2 are in the curved and warped state. The photomask 6 made of PVC is superposed on this curved resist 2. Since the photomask 6 has the resilience, the photomask is superposed along the curved resist 2 in tight ***contact*** therewith. The patterns of the resist 2 formed by irradiating the light from a UV light source 4 are prevented from blurring in this way and are efficiently formed as the exact patterns.

89/7,DS/53 (Item 5 from file: 347)
DIALOG(R)File 347:JAPIO

00681253 **Image available**
MANUFACTURE OF ELECTRONIC CIRCUIT DEVICE

PUB. NO.: 56-001553 [JP 56001553 A]
PUBLISHED: January 09, 1981 (19810109)
INVENTOR(s): FUJIMOTO HIROAKI
NOYORI MASAHARU
APPLICANT(s): MATSUSHITA ELECTRIC IND CO LTD [000582] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 54-076131 [JP 7976131]
FILED: June 15, 1979 (19790615)

ABSTRACT
PURPOSE: To mount electronic parts in high density and ***thin*** ***thickness*** by forming conductor wiring using a ***lift***-***off*** process.

CONSTITUTION: A polyimide film 13 having an adhesive layer 12 is secured to a frame 11 made of Ni or the like, a resist mask is coated thereon, and the film 13 is etched with NaOH to selectively perforate tapered ***holes*** 15 thereat. Then, an LSI chip 16 is ***conformed*** to an electrode 17 and a ***hole*** 15 and heated to be adhered to a resin film 13. Thereafter, a resist mask 14' is provided thereon to perforate the adhesive layer 12 at part of the electrode 17 and the frame 11. When the plasma etching condition is suitably selected, the step difference between the ***mask*** 14' and the ***resin*** film 13 can be increased to easily execute the subsequent ***lift***-***off*** thereat. Then, aluminum or the like 18 is evaporated, the resist 14' is lifted off to form a wiring pattern 19. In this manner, the resist used for the ***lift***-***off*** can be reduced extremely in ***thickness*** to form fine wires. Since no etching of aluminum electrode is necessary, no improper conduction occurs, the mask matching can be executed with low accuracy at the time of forming the resist for the ***lift***-***off***, and the productivity can be improved.

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>>>Format 34 is not valid in file 95
>>>Format 34 is not valid in file 144
>>>Format 34 is not valid in file 293
>>>Format 34 is not valid in file 315
>>>Format 34 is not valid in file 323
>>>Format 34 is not valid in file 347

89/34/54 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

017163682 **Image available**
WPI Acc No: 2005-488028/200549
Making a three-***dimensional*** structure useful as e.g. nanoporous filter, by directing ***coherent*** electromagnetic radiation beam onto ***mask*** element connected with radiation-sensitive material, and removing chemically modified regions of material
Patent Assignee: UNIV ILLINOIS FOUND (UNII)
Inventor: JEON S; PARK J; ROGERS J A
Number of Countries: 108 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200554119	A2	20050616	WO 2004US40192	A	20041201	200549	B

Priority Applications (No Type Date): US 2004598404 P 20040802; US 2003526245 P 20031201
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200554119	A2	E	101	B82B-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

Abstract (Basic): WO 200554119 A2
NOVELTY - Making a three-***dimensional*** structure includes directing a ***coherent*** beam of electromagnetic radiation onto a ***mask*** element in direct optical communication with a radiation-sensitive material, where interactions of electromagnetic radiation with radiation-sensitive material generate chemically

modified regions of radiation-sensitive material; and removing portion of chemically modified regions or unmodified portion of radiation-sensitive material.

DETAILED DESCRIPTION - Making a three-***dimensional*** (3D) structure includes providing a ***coherent*** beam of electromagnetic radiation, and directing the ***coherent*** beam of electromagnetic radiation onto a ***mask*** element in direct optical communication with a radiation-sensitive material. The ***mask*** element generates beams of electromagnetic radiation, generating an optical interference pattern within the radiation-sensitive material. Interactions of electromagnetic radiation with the radiation-sensitive material generate chemically modified regions of radiation-sensitive material. Portion(s) of chemically modified regions is removed or portion(s) of radiation-sensitive material which is not chemically modified is removed to generate the 3D structure.

INDEPENDENT CLAIMS are also included for the following:

(A) a device for fabricating a 3D structure, comprising a source (175) of electromagnetic radiation, and a ***mask*** element in direct optical communication with a radiation-sensitive material; and

(B) a method for assembling a 3D structure within a device, e.g. microfluidic system, microelectromechanical device, optical system, waveguide, photonic crystal assembly, nanoelectromechanical device, or nanofluidic system, by providing a ***coherent*** beam of electromagnetic radiation, and directing the ***coherent*** beam of electromagnetic radiation onto a ***mask*** element in direct optical communication with a radiation-sensitive material positioned within the device.

USE - For fabricating 3D structure useful as a device or device component, e.g. nanoporous filter, photonic crystal, phononic crystal, passive mixer for microfluidic system, element in microelectromechanical system, element in nanoelectromechanical system, or catalyst support (claimed).

ADVANTAGE - The method efficiently provides 3D structure having well defined features and selected physical ***dimensions***.

DESCRIPTION OF DRAWING(S) - The figures are a schematic view showing method and device for fabricating 3D nanoscale structure and an expanded view of a phase ***mask***.

Coherent beam of electromagnetic radiation (100)
Phase ***mask*** (110)
Radiation-sensitive material (120)
Substrate (122)
Contact ***surfaces*** of relief pattern (140)
Relief pattern (160)
Relief features (162)
Contact ***surface*** of radiation-sensitive material (170)
Amplitude varying regions (172)
Source of electromagnetic radiation (175)
Collimation element (177)
Optical filter (178)
Spot size (180)
Diffracted beams (200)
pp; 101 DwgNo 1A, 1B/16

Technology Focus:

TECHNOLOGY FOCUS - ELECTRONICS - Preferred Method: The optical interference pattern is generated by transmission of portion(s) of ***coherent*** beam (100) of electromagnetic radiation through the ***mask*** element, and/or by reflection of portion(s) of ***coherent*** beam of electromagnetic radiation by the ***mask*** element. Interactions of electromagnetic radiation with radiation-sensitive material polymerize regions of radiation-sensitive material. The method includes making a pattern of 3D structure on a ***substrate***, heating the radiation-sensitive material during exposure to electromagnetic radiation, exposing the radiation-sensitive material to solvent(s) to remove portion(s) of chemically modified regions of radiation-sensitive material or unmodified portion(s) of radiation-sensitive material, removing the solvent by drying with super critical carbon dioxide, and baking the 3D structure.

Preferred ***Dimensions***: The 3D structure has physical ***dimension***(s) of 20-1000 ***nm***.

Preferred Parameters: The ***coherent*** electromagnetic radiation has a wavelength such that single-photon or multi-photon absorption by the radiation-sensitive material initiates photopolymerization.

Preferred Components: The optical interference pattern has a selected distribution of phases, intensities, or polarization states of electromagnetic radiation. The ***mask*** element has ***contact*** ***surface***(s) in ***conformal*** ***contact*** with a ***contact*** ***surface*** of radiation-sensitive material (120). The ***mask*** element is a phase ***mask*** (110), preferably ***conformable*** ***elastomeric*** phase ***mask*** made of polydimethylsiloxane. The phase ***mask*** comprises a relief pattern (160) having ***contact*** ***surfaces*** (140) in ***conformal*** ***contact*** with a ***contact*** ***surface*** (170) of radiation-sensitive material, and relief features (162) exhibiting ***dimensions*** of 5000-20 ***nm***. The relief pattern may comprise symmetrical or asymmetrical pattern of relief features. The ***contact*** ***surfaces*** of ***mask*** element and radiation-sensitive ***surfaces*** are smooth and flat ***surfaces***. The radiation-sensitive material is supported by a ***substrate*** (122) that is transparent to ***coherent*** beam of electromagnetic radiation. Alternatively, the ***mask*** element may comprise amplitude modulating elements which prevent the transmission of a portion of ***coherent*** electromagnetic radiation, and absorb, reflect, or scatter a portion electromagnetic radiation. The amplitude modulating elements are ***thin*** metal films. The 3D structure comprises a pattern of nanoscale features, e.g. feature(s) having a vertical ***dimension*** of selected size and/or feature(s) having a lateral ***dimension*** of selected size. The source of electromagnetic radiation comprises a narrow band source of electromagnetic radiation, or a broad band source of electromagnetic radiation and an optical filter. The device includes a ***coherence*** selection element positioned between the source of electromagnetic radiation and ***mask*** element for selecting the ***coherence*** of ***coherent*** beam of electromagnetic radiation directed onto the ***mask*** element. The ***coherence*** selection element is lens, collimation tube, pin hole, optical interference filter, monochrometer, or cutoff filter.

POLYMERS - Preferred Materials: The radiation-sensitive material comprises photopolymer
Derwent Class: A85; L03; U11; U12
International Patent Class (Main): B82B-000/00

89/34/55 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016897620 **Image available**
WPI Acc No: 2005-221907/200523
Thermoforming system for polymer sheet, comprises mold, platen having flexible web for supporting polymer sheet, heat-generating source, and coating composition for coating polymer sheet to facilitate its release from platen
Patent Assignee: PERCIVAL J D (PERC-I)
Inventor: PERCIVAL J D
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20050053789	A1	20050310	US 2001682194	A	20010803	200523	B
			US 2004971739	A	20041022		

Priority Applications (No Type Date): US 2001682194 A 20010803; US 2004971739 A 20041022
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20050053789	A1		9	B29C-051/08	Div ex application US 2001682194
					Div ex patent US 6808665

Abstract (Basic): US 20050053789 A1

NOVELTY - A thermoforming system comprises a mold having predetermined shape; a platen having a flexible web for supporting polymer sheet adjacent the mold, and ***movable*** toward the mold for stretching the web over and covering the mold ***surface*** to engage the sheet with the mold; a heat-generating source for heating the sheet so that it softens to ***conform*** to the mold shape, and a coating composition for coating the sheet to facilitate its release from platen.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(A) a method of thermoforming a polymer sheet by ***positioning*** a coated polymer sheet on a stretchable web supported by a platen ***positioned*** in spaced relation to a mold, heating the coated polymer sheet to a thermoformable temperature, and lowering the platen over the mold to effectively engage the sheet with the mold to enable the polymer sheet to ***conform*** to the mold; and

(B) a protectively ***masked*** thermoformable ***polymer*** composition comprising a thermoformable polymer sheet having a ***first*** ***surface*** and an opposite ***second*** ***surface***, ***first*** and ***second*** polymer laminate layers coupled with the respective ***first*** and ***second*** ***surfaces***, and ***first*** and ***second*** heat-resistant non-stick coatings bonded to the

first and ***second*** polymer laminate layers.
USE - For thermoforming a polymer sheet.
ADVANTAGE - The inventive thermoforming system is energy efficient, minimizes thermoforming temperature, and produces a product with superior optical clarity.
DESCRIPTION OF DRAWING(S) - The figure is a front perspective view of a thermoforming apparatus.
Frame assembly (20)
Mold (22)
Platen (24)
Second platen (26)
Heat-generating source (28)
Table (34)
pp; 9 DwgNo 1/6
Technology Focus:
TECHNOLOGY FOCUS - MECHANICAL ENGINEERING - Preferred Components: The flexible web comprises a ***first*** stretchable mold-***contacting*** layer, and a ***second*** polymer-sheet-***contacting*** layer. The ***first*** layer has a greater modulus of elasticity than the ***second*** layer. The heat-generating source (28) is mounted for reciprocal ***positioning*** over the polymer sheet. The system includes a ***second*** platen (26) in spaced relation to the platen (24) supporting the polymer sheet. The ***second*** platen includes a ***second*** flexible web and ***movable*** toward the mold (22) for stretching the ***second*** web over and urging the polymer sheet into ***conformance*** with the mold.
POLYMERS - Preferred Properties: The coating composition exhibits non-stick characteristics with respect to a ***contacting*** ***surface*** of the sheet and resists thermoforming temperature of up to 370degreesF. Preferred Compositions: The coating composition is a water-free mixture comprising silicone, organic solvent, and silica. The heat-resistant non-stick coatings comprise a mixture of silicone and organic solvents, or a solution of organic solvent mixed with polymer, e.g. silane, silicone, siloxane, acrylic resin, PTFE, epoxy, polyester, urethane, allyl resin, amino resin, or phenolic resin. The heat-resistant non-stick coatings may comprise ceramic material.
Preferred ***Dimensions***: The heat-resistant non-stick coating has a ***thickness*** of 0.0005-0.005 inch.
Derwent Class: A26; A32; A89; A92; A95; G02; P73
International Patent Class (Main): B29C-051/08
International Patent Class (Additional): B32B-027/30; B32B-027/36; B32B-027/38; B32B-027/40

89/34/56 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016738929
WPI Acc No: 2005-063226/200507
Creating pattern on ***substrate*** used in sensors comprises treating energy ***modifier*** coating on applicator, with transfer member having

protrusion, applying polymeric material on another modified member and ***contacting*** protrusion with ***substrate***
Patent Assignee: AGENCY SCI TECHNOLOGY & RES (SCTE-N); UNIV MICHIGAN (UNMI)
Inventor: BAO L; GUO L J; HUANG X; KONG Y P; PANG S W; TAN L; YEE A
Number of Countries: 108 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20040231781	A1	20041125	US 2003444505	A	20030523	200507	B
WO 2004107045	A2	20041209	WO 2004US16016	A	20040521	200507	
US 6860956	B2	20050301	US 2003444505	A	20030523	200516	

Priority Applications (No Type Date): US 2003444505 A 20030523
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040231781	A1		18	B44C-001/165	
WO 2004107045	A2	E		G03F-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

US 6860956 B2 B44C-003/08

Abstract (Basic): US 20040231781 A1

NOVELTY - Creating pattern on ***substrate*** comprises:

(i) applying ***first*** ***surface*** energy ***modifier*** (a) to an applicator to form coating; ***contacting*** the coating with transfer member comprising protrusions to form ***first*** modified transfer member (a1);

(ii) exposing (a1) to ***second*** ***surface*** energy ***modifier*** (b) to form a ***second*** modified transfer member (b1); applying polymeric material to (b1); and

(iii) ***contacting*** composition-coated, ***surface*** modified protrusions with a ***substrate***.

DETAILED DESCRIPTION - Creating a pattern on a ***substrate*** involves:

(a) applying a ***first*** ***surface*** energy ***modifier*** (a) to an applicator to form a coating;

(b) ***contacting*** the coating with a transfer member comprising a topography containing several protrusions and recesses (where the coating only ***contacts*** and remains on at least some of the protrusions but not any of the recesses and thus forms a ***first*** modified transfer member (a1) having ***surface*** modified protrusions);

(c) exposing (a1) to a ***second*** ***surface*** energy ***modifier*** (b) to form a ***second*** modified transfer member (b1) having modified recesses and differential ***surface*** energy on the ***surface*** modified protrusions and ***surface*** modified recesses

(where (b) creates a ***surface*** energy on a silicon wafer that has lower ***surface*** energy of the same silicon wafer treated with (a));

(d) applying a composition comprising polymeric material to (b1). The composition ***conforms*** to the topography of the ***surface*** modified protrusions and the ***surface*** modified recesses to form composition-coated, ***surface***-modified protrusions and composition-coated ***surface*** modified recesses; and

(e) optionally annealing over glass transition temperature (Tg) after step (D), ***contacting*** the composition-coated, ***surface*** modified protrusions with a ***substrate*** having a ***surface*** for certain period of time and under appropriate pressure and temperature to transfer the polymeric material from the transfer member to the ***substrate*** ***surface***.

USE - For creating pattern on ***substrate*** e.g. polymer, semiconductor, dielectric, silicon components and/or metals, and in the preparation of articles of manufacture (claimed) e.g. optical gratings and sensors, in photolithography and in semiconductor IC industry.

ADVANTAGE - The method forms high aspect ratio and polymer inked features on the ***substrate*** having smooth, coarse, or porous ***surface***. The method creates sharp, regular or non-regular patterns reproducibly on many ***substrates***. The patterns formed by the method are not easily removed and do not change in topography over ***wide*** variety of environmental conditions. The method improves edge smoothness of inked patterns.

pp; 18 DwgNo 0/7

Technology Focus:

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Components: (a) Is a silane (preferably organosilane of formula RnSiX4-n (I), especially phenethyl trichlorosilane (PETS) or methacryloxy propyl trichlorosilane (MOPTS)). (b) Is silane of formula (I) (preferably 1H,1H,2H,2H-perfluorodecyltrichlorosilane).

R=a functional or nonfunctional group;

X=reactive group and/or a group which is hydrolyzable into reactive group with a hydroxyl group;

n=1 - 3.

ELECTRONICS - Preferred Components: The transfer member is a hard mold containing a desired pattern or relief for micro-/nano-structure. The mold comprises a material selected from semiconductor, dielectric, polymer and/or metal, and a material whose ***surface*** is modified to create hydroxyl groups on it. The transfer member has a pattern produced by molding, etching through a ***mask***, photolithography, x-ray lithography and/or nanoimprint lithography (NIL). The ***substrate*** has varied three-***dimensional*** forms perpendicular to a plane of the ***substrate***. The ***substrate*** bears a pattern produced by molding, etching through ***mask***, photolithography and/or x-ray lithography. The sub-***micrometer*** ***dimension*** patterns are achieved on the ***substrate*** by controlled de-wetting of polymer from the ***second*** modified transfer member (where the ***second*** modified transfer member protrusions have ***micrometer*** -sized ***dimensions***).

Preferred Method: The ***substrate*** ***surface*** is modified by

chemical oxidizing treatment or with a plasma, or alternatively coated with a layer of glass, silica or metal by techniques such as sputtering, chemical deposition in the vapor phase, or sol gel.

The method further involves exposing the product of step (E) to reactive ion etching to extend the pattern into the ***substrate***.

POLYMERS - Preferred Components: The applicator comprises an ***elastomer*** (preferably polydimethyl siloxane). The polymeric material comprises relatively soft materials compared to the transfer member (preferably thermoplastic polymers, thermal/irradiative curable prepolymers or glass or ceramic precursors). The polymer is poly (methyl methacrylate) or polycarbonate.

Derwent Class: A26; A85; E11; L03; P42; P73; P78; P84; U11; V07
International Patent Class (Main): B44C-001/165; B44C-003/08; G03F-000/00
International Patent Class (Additional): B05D-003/10; B29C-033/00; B32B-031/20; C03C-017/30

89/34/57 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016586942 **Image available**
WPI Acc No: 2004-745677/200473
Thermoforming of polymer sheet used as, e.g. lenses, by ***positioning*** polymer sheet on stretchable web supported by platen, heating the polymer sheet, and lowering the platen over the mold so that the polymer sheet ***conforms*** to the mold
Patent Assignee: PERCIVAL J D (PERC-I)
Inventor: PERCIVAL J D
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6808665	B1	20041026	US 2001682194	A	20010803	200473	B

Priority Applications (No Type Date): US 2001682194 A 20010803
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6808665	B1		9	B27B-017/00	

Abstract (Basic): US 6808665 B1

NOVELTY - A polymer sheet is thermoformed by ***positioning*** a polymer sheet on a stretchable web supported by a platen in spaced relation to a mold; heating the polymer sheet to a thermoformable temperature; and lowering the platen over the mold to effectively engage the sheet with the mold to enable the polymer sheet to ***conform*** to the mold.

USE - For thermoforming a polymer sheet used as lenses, windows, housings, containers, or coverings.

ADVANTAGE - The method is energy efficient, minimizes thermoforming temperatures, and produces product with superior optical clarity. The heat-resistant coating can withstand thermoforming temperatures of greater than or equal to450degreesF without ignition or degradation.

DESCRIPTION OF DRAWING(S) - The figure is a labeled flow diagram showing steps of thermoforming system for ***masked*** ***polymers***.
pp; 9 DwgNo 6/6

Technology Focus:

TECHNOLOGY FOCUS - CERAMICS AND GLASS - Preferred Component: The non-stick coating comprises a ceramic material.

INORGANIC CHEMISTRY - Preferred Component: The heat resistant coating composition includes silicon.

ORGANIC CHEMISTRY - Preferred Component: The heat resistant coating composition includes silicon.

POLYMERS - Preferred Method: The method also involves coating the polymer sheet with a heat resistant non-stick composition. The method further involves lowering a ***second*** ***movable*** platen toward the sheet for urging the sheet in ***conformance*** with the mold; waiting until the polymer sheet ***conforms*** to the mold; and ***removing*** the formed polymer sheet from the mold. Preferred Component: The polymer sheet further includes a ***surface*** protecting laminate. The non-stick coating comprises a solution including a solvating quantity of an organic solvent mixed with a quantity of a polymer consisting of silanes, silicones, siloxane, acrylic resins, polytetrafluoroethylene, epoxies, polyesters, urethanes, allyl resins, amino resins, or phenolic resins.

Derwent Class: A14; A28; A32; A95; P63

International Patent Class (Main): B27B-017/00

89/34/58 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

016374428 **Image available**

WPI Acc No: 2004-532335/200451

Use of phase-shifting article for photolithography comprises directing radiation at predetermined area while contacting portion of photoresist surface with phase-shifting article to establish minimum in electromagnetic radiation intensity

Patent Assignee: HARVARD COLLEGE (HARD)

Inventor: BREEN T L; ***JACKMAN R J***; PAUL K E; ROGERS J A; SCHUELLER O J A; ***WHITESIDES G M***

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6753131	B1	20040622	US 97853050	A	19970508	200451	B
			US 99115524	P	19990112		
			US 99422611	A	19991021		

Priority Applications (No Type Date): US 99115524 P 19990112; US 97853050 A 19970508; US 99422611 A 19991021

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6753131	B1		37	G03C-005/00	CIP of application US 97853050
					Provisional application US 99115524

Abstract (Basic): US 6753131 B1

NOVELTY - Using a phase-shifting article comprises establishing a minimum in intensity of electromagnetic radiation at a predetermined area of a surface of photoresist exposed to radiation by directing the radiation at the predetermined area while contacting a first portion of the surface, which terminates at the predetermined area, with a phase-shifting article that is transparent to radiation and that shifts the phase of the radiation.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method comprising placing a surface of a phase ***mask*** in contact with a surface of photoresist (22, 44); exposing the surface to electromagnetic radiation through the phase ***mask***; and developing and removing photoresist in a pattern (24) dictated by a pattern of the phase ***mask***.

USE - For using a phase-shifting article for photolithography.

ADVANTAGE - The invention contours a surface of photoresist and alters light such that the photoresist is developed according to a pattern without the use of an auxiliary ***mask***.

DESCRIPTION OF DRAWING(S) - The figure shows the fabrication of a contact phase ***mask*** or optical modulator and use of a contact phase ***mask*** for creation of small features in a film of photoresist.

Substrate (20, 42)
Photoresist (22, 44)
Pattern (24, 54)
Transparent, elastomeric article (26, 34)
Indentations (30)
Photoresist (44)
Top surface (46)
Contact portions (48)
Intervening regions (50)
pp; 37 DwgNo 1/16

Technology Focus:

TECHNOLOGY FOCUS - MECHANICAL ENGINEERING - Preferred Method: A second portion of the surface that bounds the first portion at the predetermined area is allowed to remain free of contact with the phase-shifting article to establish a refractive index boundary at the boundary of the first and second portions that creates a phase boundary in the electromagnetic radiation striking the surface at the predetermined area. First portions of the surface are contacted with outward-facing surfaces of the protrusions while allowing the indentations (30) to be positioned in alignment with intervening contiguous, second portions of the surface that remain free of contact with the phase-shifting article to establish boundaries between first and second portions of the surface. The surface, which may be a surface of a photoresist film, is exposed to the electromagnetic radiation through the phase-shifting article to create a phase boundary in the electromagnetic radiation striking the surface at predetermined areas each including a boundary between first and second portions and establishing minima in intensity of electromagnetic radiation at each predetermined area. The surface is exposed to the electromagnetic

radiation at an intensity and for a period of time sufficient to alter the photoresist not at the boundaries. Portions of the photoresist film are removed not at the boundaries from the photoresist at the boundaries. The photoresist at the boundaries define a pattern (54).
Preferred Components: The phase-shifting article has a first refractive index. It has a contoured surface including alternating indentations and protrusions. The pattern of altered photoresist includes a portion having a lateral dimension of less than 100 nm. The surface has a portion that is curved. The portion that is curved has a radius of curvature of less than 25 (preferably less than 0.5) cm. The pattern includes a curved portion having a radius of curvature of less than 100 (preferably 0.2) microns.
Derwent Class: L03; P83; P84; U11; V07
International Patent Class (Main): G03C-005/00
International Patent Class (Additional): G03F-009/00

89/34/59 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016289459 **Image available**
WPI Acc No: 2004-447354/200442
Manufacture of microfluidic device comprises providing ***first*** planar substrate, depositing ***first*** polymer layer, ***removing*** ***first*** ***portion*** of polymer layer, and overlaying ***second*** planar substrate layer on polymer layer
Patent Assignee: CALIPER LIFE SCI INC (CALI-N)
Inventor: CHAZAN D
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6752966	B1	20040622	US 99394012	A	19990910	200442	B
			US 2000654603	A	20000901		

Priority Applications (No Type Date): US 2000654603 A 20000901; US 99394012 A 19990910
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6752966	B1		15	B01L-003/00	CIP of application US 99394012

Abstract (Basic): US 6752966 B1
NOVELTY - Microfluidic device is manufactured by providing ***first*** planar substrate having a ***first*** ***surface***, depositing ***first*** polymer layer on the ***first*** ***surface*** of the ***first*** substrate, ***removing*** ***first*** ***portion*** of the polymer layer to expose an ***area*** of the ***first*** ***surface*** of the ***first*** substrate, and overlaying a ***second*** planar substrate layer (112) on polymer layer.
DETAILED DESCRIPTION - Manufacture of microfluidic device comprises providing ***first*** planar substrate having a ***first*** ***surface***, depositing ***first*** polymer layer on the ***first***

surface of the ***first*** substrate, ***removing*** ***first*** ***portion*** of the polymer layer to expose an ***area*** of the ***first*** ***surface*** of the ***first*** substrate, and overlaying a ***second*** planar substrate layer on polymer layer to seal the groove(s) (110) in the polymer layer as ***channel***(s) in the desired ***channel*** pattern. The ***removal*** of the ***first*** ***portion*** of the polymer layer provides groove(s) in the polymer layer that correspond to a desired ***channel*** pattern.

INDEPENDENT CLAIMS are also included for:

(A) a microfluidic device comprising ***first*** substrate layer having ***first*** ***surface***, ***first*** photoimageable polymer layer on the ***first*** ***surface*** of the ***first*** substrate, and ***second*** planar substrate layer having ***first*** ***surface***; and

(B) an analytical system comprising microfluidic device, material transport system for directing ***movement*** of material the microscale ***channel***(s), and detector for detecting signals from the material.

USE - For manufacturing microfluidic device used in analytical system (claimed).

ADVANTAGE - The invention provides less expensive, less defect prone, and more versatile way of manufacturing microscale devices.

DESCRIPTION OF DRAWING(S) - The figure is a schematic illustration of a fabrication of microfluidic device using an intermediate photoimageable polymer layer.

Groove (110)

Second planar substrate layer (112)

pp; 15 DwgNo 1E/3

Technology Focus:

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Material: The ***first*** substrate is glass, quartz, fused silica, or silicon.

ORGANIC CHEMISTRY - Preferred Material: The ***first*** substrate is glass, quartz, fused silica, or silicon.

POLYMERS - Preferred Process: The ***removal*** of the ***first*** ***portion*** of the polymer layer comprises exposing ***first*** selected regions of the photoimageable polymer layer to effective levels of electromagnetic radiation, and ***removing*** the ***first*** ***portion*** of the photoimageable polymer layer. The exposure of ***first*** selected regions of the photoimageable polymer layer to effective levels of electromagnetic radiation comprises directing a light source at the photoimageable ***polymer*** layer through a ***mask***, and ***movably*** directing the light source at different ***portions*** of the photoimageable polymer layer. The deposition of the ***first*** polymer layer on the ***first*** ***surface*** of the ***first*** substrate comprises spin coating the photoimageable polymer into the ***first*** ***surface***, laminating the photoimageable polymer into the ***first*** ***surface***, or spray coating the photoimageable polymer into the ***first*** ***surface***. The irradiation step comprises directing light at the predefined locations of the photoimageable polymer layer. The overlaying of ***second*** planar substrate layer comprises bonding the ***second*** substrate layer to the layer of photoimageable polymer. The bonding step

comprises pressing the ***second*** substrate layer to the layer of photoimageable polymer. The manufacture of microfluidic device further includes providing a groove in the ***first*** ***surface*** of the ***first*** substrate, depositing a ***second*** polymer layer on ***second*** ***surface*** of the ***second*** substrate opposite the ***first*** ***surface*** of the ***second*** substrate, ***removing*** ***portion*** of the ***second*** polymer layer to expose an ***area*** of the ***second*** ***surface*** of the ***second*** substrate, overlaying a third planar substrate layer on the ***second*** polymer layer to seal the groove(s) in the ***second*** polymer layer as ***channel***(s) in the desired ***channel*** pattern, depositing a blocking layer between the ***first*** planar substrate and ***first*** polymer layer, and incorporating a fluorescence absorbing or masking compound into the ***first*** polymer layer. Preferred Component: The ***first*** polymer layer comprises a photoimageable polymer layer. The selected regions correspond to the ***first*** ***portion*** of the ***first*** polymer layer or correspond to the ***first*** polymer layer immediately surrounding but not including the ***first*** ***portion***. The photoimageable polymer comprises ***positive*** photoresist and negative photoresist. The mask comprises transparent regions that correspond to ***channel***(s) of the desired ***channel*** pattern. The photoimageable polymer is photoimageable polyimides, photoimageable benzocyclobutenes, photoimageable epoxies, novolac based ***positive*** photoresists, or cardo type photopolymers. The photoimageable polymer layer comprises adhesive ***surface***. The groove in the ***first*** ***surface*** of the ***first*** substrate intersects, and is in fluid communication with the groove in the ***first*** polymer layer. The ***first*** ***surface*** of the ***second*** substrate is overlaid on the polymer layer. The polymer layer comprises laser ablatable polymer layer. The ***first*** substrate comprises a non-ablatable substrate. The light source comprises a ***coherent*** light source, and laser. The microfluidic device further includes a ***second*** groove disposed in ***first*** ***surface*** of the ***first*** substrate or ***first*** ***surface*** of the ***second*** substrate, ***second*** photoimageable polymer layer disposed on ***second*** ***surface*** of the ***second*** substrate opposite the ***first*** ***surface*** of the ***second*** substrate, third planar substrate layer having ***first*** ***surface***, and blocking layer disposed between the ***first*** substrate layer and ***first*** photoimageable polymer layer. Preferred Material: The polymer layer is polymethylmethacrylate, polycarbonate, polytetrafluoroethylene, polyvinylchloride, polydimethylsiloxane, polysulfone, polystyrene, polymethylpentene, polypropylene, polyethylene, polyvinylidene fluoride, or acrylonitrile-butadiene-styrene copolymer. Preferred Property: The photoimageable polymer is between 1-100, preferably 5-50microns ***thick***. The light comprises light of a wavelength between 190-430 ***nanometers*** (***nm***). The groove comprises an aspect ratio (***depth***:***width***) greater than 1.

Derwent Class: A18; A28; A32; A89; J04
International Patent Class (Main): B01L-003/00

89/34/60 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016020655 **Image available**
WPI Acc No: 2004-178506/200417
Conductive aqueous polymeric vehicular emulsion composition used as electromagnetic interference ***shielding***, comprises copolymerized water soluble acrylic polymer, conductive material component, water-soluble wetting ***agent***, and water
Patent Assignee: ANUVU INC (ANUV-N); BECKER R R (BECK-I); HODGE R A (HODG-I); ORSBON W B (ORSB-I)
Inventor: BECKER R R; HODGE R A; ORSBON W B
Number of Countries: 103 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030209697	A1	20031113	US 2002143198	A	20020509	200417	B
WO 200464080	A1	20040729	WO 2003US14863	A	20030508	200451	
AU 2003229026	A1	20040810	AU 2003229026	A	20030508	200479	
US 6866799	B2	20050315	US 2002143198	A	20020509	200520	

Priority Applications (No Type Date): US 2002143198 A 20020509
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030209697	A1		18	H01B-001/00	
WO 200464080	A1	E		H01B-001/22	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
AU 2003229026	A1			H01B-001/22	Based on patent WO 200464080
US 6866799	B2			H01B-001/22	

Abstract (Basic): US 20030209697 A1

NOVELTY - A conductive aqueous polymeric vehicular emulsion composition comprises water soluble acrylic polymer copolymerized with a styrene polymer, conductive material component, water-soluble wetting ***agent***, and water.

USE - Used to produce, operate, or maintain electrical circuitry, electrical circuit boards (10), other mechanism for transmitting electricity, electrical structural integrity matrices, electromagnetic field transmission and reception devices, electrical electromagnetic interference ***shielding***, electrical ***contacts***, or electrochemical fuel cells or electrolysis cells; used as a conductive sealant; as conductive adhesive for mounting and fastening electronic components; or used to protect conductive or insulative ***substrates*** (14) from corrosion through stencil or screen

printing, transfer pad or tampon printing, pen plotter printing, ink jet printing, ***masked*** printing, waterless lithography printing, flexographic printing, or dipping. (All claimed)

ADVANTAGE - The inventive composition provides a cost-effective and environmentally benign alternative to the expensive and hazardous etching acids and volatile organic compounds that are industry standards in electronic manufacturing.

DESCRIPTION OF DRAWING(S) - The figure is an exploded isometric view of circuit board.

Circuit boards (10)
Conductive traces (12)
Substrates (14)
Insulator points (20)
Mounting pads (40)
Surface mounts technology components (50)
Circuit board layers (L1-L5)
pp; 18 DwgNo 1/2

Technology Focus:

TECHNOLOGY FOCUS - POLYMERS - Preferred Composition: The conductive aqueous polymeric vehicular emulsion composition comprises 8-45% of total compositional weight of a water-soluble acrylic polymer copolymerized with another polymer; less than 90% of total compositional weight of a conductive material component; water-soluble wetting ***agent***; and water. It is augmented with 0.1-7 wt.% water-soluble ***elastomer***, 1-8 wt.% water-soluble gelling ***agent***, 1-42 wt.% water-soluble wetting ***agent***, 0.01-5 wt.% water-soluble antifoaming ***agent***, 0.1-5 wt.% water-soluble polymer dispersant, 0.1-5 wt.% water-soluble ***surfactant***, 0.1-6 wt.% water-soluble bonding ***agent***, or with 0.1-19 wt.% fluoro-polymer. Preferred Component: The other polymer consists of styrene polymers, acrylate polymers, polyacrylate polymers, (meth)acrylate polymers, poly(meth)acrylate polymers, hydroxyl polymers; esters and acids of acrylic polymers, styrene polymers, acrylate polymers, polyacrylate polymers, (meth)acrylate polymers, poly(meth)acrylate polymers, hydroxyl polymers and their polymerizations product. The water-soluble ***elastomer*** comprises silicone-based ***elastomers***, silicone polysiloxane, paraffins, alkaline paraffins, macro-paraffins, silanes or calcium stearate. The water-soluble gelling ***agent*** comprises silicone dioxide, thixotropiem, Gum Arabic, or Xanthan Gum. The water soluble wetting ***agent*** comprises methyl diglycol, butyl diglycol ether, propylene glycol methyl ether, dipropylene glycol methyl ether, ethylene glycol n-butyl ether, or diethylene glycol n-butyl ether. The water-soluble antifoaming ***agent*** comprises silicone-based emulsions. The water-soluble polymer dispersant comprises carboxylic polymers, carboxylic acid polymers, salts of carboxylic polymers, salts of carboxylic acid polymers, soja-lecithin, or alkyl phenol polyglycol ether. The water-soluble ***surfactant*** comprises acrylate polymers, ethyl polymers, ethylhexyl polymers, cross-linked acrylate-ethyl polymers, cross-linked acrylate ethylhexyl polymers, hydroxy propyl methyl cellulose, or hydroxy ethyl methyl cellulose. The water-soluble bonding ***agent*** comprises silanes, aminoalkyl silanes, alkyl silanes, amino silanes, acrylates, or polyacrylates. The fluoro-polymer

comprises polytetrafluoroethylene or perfluorosulfonic acid ionomer. Preferred Property: The water-soluble gelling ***agent*** is manipulated by percentage of total weight of the composition to vary the material viscosity properties and/or curing properties of the composition. The water-soluble antifoaming ***agent*** is manipulated by percentage of total weight of the composition to vary the properties of the composition that protect against chemical corrosion. The conductive material component is approximately1-50mum in diameter. It manipulated by percentage of total weight of the composition to vary the electrical conductivity of the composition thus utilizing the composition to produce, operate and maintain an electrical resistor.

INORGANIC CHEMISTRY - Preferred Component: The conductive material component consists of aluminum, antimony, bismuth, cadmium, chromium, copper, gallium, gold, iridium, lead, magnesium, manganese, mercury, molybdenum, nickel, palladium, platinum, rhodium, selenium, silver, tantalum, tellurium, tin, titanium, tungsten, uranium, zinc, zirconium, silver halide, conductive carbons, carbon nanostructures, carbon blacks, and/or graphites

Extension Abstract:

EXAMPLE - A conductive emulsion composition having optimum pH of 6-8 was prepared by mixing five component stages. The first stage component was comprised of 2.4% gelling ***agent*** comprising 96-97% silicon dioxide and 3-4% hydrocarbons; 23-3% thermoplastic acrylic-styrene copolymer emulsion; 13.9% ethylene glycol n-butyl ether; 0.31% dispersant comprising 75% water and sodium salt of polymeric carboxylic acid; and 2.32% deionized water. The second stage component was comprised of 0.04% silicone-based antifoaming emulsion; 0.39% ***surfactant*** comprising acrylate copolymer with traces of 2-ethylhexyl acrylate and ethyl acrylate; and 0.77% deionized water. The third stage component was comprised of 0.27% bonding comprising aminoalkyl-functional silane and 0.77% deionized water. The fourth stage component was comprised of 0.58% water based ***elastomer*** comprising silicon-based ***elastomer*** and 1.55% deionized water. The fifth stage component was comprised of 53.4% silver flake having 1-50mum diameter.

Derwent Class: A18; A85; L03; V04; X12; X16

International Patent Class (Main): H01B-001/00; H01B-001/22

International Patent Class (Additional): C09D-004/00; C09D-005/00; H01B-001/24

89/34/61 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

015997633 **Image available**

WPI Acc No: 2004-155483/200415

Pitch reduction method for integrated circuit fabrication, involves forming photoresist layer on partial substrate using single mask, and ***removing*** photoresist layer after formation of ***conformal*** polymer coating or oxide layer

Patent Assignee: MACRONIX INT CO LTD (MACR-N)

Inventor: CHANG C; CHUNG W
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20040010769	A1	20040115	US 2002193225	A	20020712	200415	B

Priority Applications (No Type Date): US 2002193225 A 20020712
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040010769	A1		11	G06F-017/50	

Abstract (Basic): US 20040010769 A1
NOVELTY - A photoresist layer is formed on a partial substrate (100) using a single ***photomask***. A ***conformal*** ***polymer*** coating, oxide coating or metal layer is formed on the side wall of the photoresist layer, and then the photoresist layer is ***removed***.
USE - For reducing critical ***dimension*** of semiconductor element such as semiconductor chip used in fabrication of high density integrated circuits (ICs).
ADVANTAGE - Effectively increases the proceeding efficiency and proceeding flexibility, thus improving the quality of the semiconductor element at low cost. Enables effective reduction of the critical ***dimension*** of the chip, thereby providing improved pitch reduction with enhanced efficiency.
DESCRIPTION OF DRAWING(S) - The figure shows the ***sectional*** diagram illustrating the formation of complex layer on the partial substrate.
partial substrate (100)
trench (250)
material layers (300,500)
pp; 11 DwgNo 10/10
Derwent Class: U11
International Patent Class (Main): G06F-017/50

89/34/62 (Item 9 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015803019 **Image available**
WPI Acc No: 2003-865222/200380
Pressure-resistance hose with watertight structure, comprises adhesive coated on overlapped ends of hose layer of polyethylene mixed fabrics
Patent Assignee: JEONG I (JEON-I)
Inventor: JEONG I
Number of Countries: 103 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200383342	A1	20031009	WO 2003KR624	A	20030328	200380	B
AU 2003214681	A1	20031013	AU 2003214681	A	20030328	200435	
EP 1490619	A1	20041229	EP 2003710499	A	20030328	200502	
			WO 2003KR624	A	20030328		

US 20050109414 A1 20050526 WO 2003KR624 A 20030328 200536
US 2004508826 A 20040922

Priority Applications (No Type Date): KR 2002U9419 U 20020329
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
WO 200383342 A1 E 25 F16L-011/02
Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW
AU 2003214681 A1 F16L-011/02 Based on patent WO 200383342
EP 1490619 A1 E F16L-011/02 Based on patent WO 200383342
Designated States (Regional): AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR
US 20050109414 A1 F16L-011/00

Abstract (Basic): WO 200383342 A1

NOVELTY - A pressure-resistance hose with watertight structure comprises hose layer, and adhesives. The hose layer has polyethylene mixed fabrics and watertight film(s). The minute pores of polyethylene mixed fabrics exposed along overlapped ends of hose layer are covered with adhesives, thus preventing dew condensation phenomenon from occurring on exposed ends or ***surfaces*** of pressure-resistance hose.

DETAILED DESCRIPTION - A pressure-resistance hose (130) with watertight structure comprises hose layer, and adhesives. The hose layer includes polyethylene mixed fabrics (110) and watertight film(s) (120). The watertight film coated on upper or lower ***surface*** of the polyethylene mixed fabrics. The hose layer ends are overlapped with each other. The adhesives are coated on overlapped ends of the hose layer. The minute pores of polyethylene mixed fabrics exposed along overlapped ends of the hose layer are covered with adhesives, thus preventing dew condensation phenomenon from occurring on exposed ends or ***surfaces*** of pressure-resistance hose.

USE - Pressure sensitive hose.

ADVANTAGE - The invention provides improved reliability and endurance of the pressure-resistance hose, thus achieving a high value added pressure-resistance hose. A dew condensation phenomenon, i.e. sweating phenomenon, is prevented from occurring on an exposed end or a ***surface*** of pressure-resistance hose.

DESCRIPTION OF DRAWING(S) - The figures show enlarged sectional views of the pressure-resistance hose.

Fabrics (110)
Watertight film (120)
Pressure-resistance hose (130)
Raw fabrics (130)
Adhesive ***agent*** (140)

Bending section (150)
Coating section (200)
Adhesive liquid (210)
pp; 25 DwgNo 3a, 3b, 3c, 3d/7

Technology Focus:

TECHNOLOGY FOCUS - MECHANICAL ENGINEERING - Preferred Components: The adhesives coated on the overlapping ends of the hose layer include an adhesive film with a viscosity, or adhesive liquid (210). The adhesives coated on the overlapping ends of the hose layer surround the exposed ends of the pressure-resistance hose. The adhesive liquid is mildly blended, with low viscosity. The adhesive liquid is introduced into ends of polyethylene mixed fabrics from ends of supplied raw fabric in order to ***shield*** pores of the polyethylene mixed fabrics. The watertight structure of the pressure-resistance hose includes an adhesive ***agent*** (140) coated between overlapping ***surfaces*** of the hose layer. The watertight structure of the pressure-resistance hose diffuses from overlapping ***surfaces*** of the hose layer in order to ***shield*** the overlapping ends of the hose layer when external force is applied. The external force is applied to the watertight structure using a roller. An inner overlapping end of the hose layer is outwardly bent to allow the inner overlapping end ***masks*** to ***contact*** with an outer overlapping end of the hose layer, thus ***shielding*** exposed ends of the polyethylene mixed fabrics surrounded by the watertight film. The resin film has strip shape and is installed at an outer ***surface*** of watertight film coated on the ***surfaces*** of the polyethylene mixed fabrics. The resin film is stacked on the outer ***surface*** of the watertight film and has a ***width*** larger than the ***width*** of the watertight film coated on the ***surfaces*** of the polyethylene mixed fabrics. The resin film includes U-shaped strip surrounding the inner overlapping end of the hose layer.

POLYMERS - Preferred Resin: The resin film is high-density polyethylene film, biaxially oriented polypropylene film, polyethylene terephthalate film, low-density polyethylene film, casting polypropylene, thermoplastic ***elastomer*** or silicone.

Derwent Class: A88; Q67
International Patent Class (Main): F16L-011/00; F16L-011/02

89/34/63 (Item 10 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015781168 **Image available**
WPI Acc No: 2003-843371/200378

Control of ***removal*** of photoresist material from semiconductor ***substrate*** by forming ***conformal*** layer of ***polymer*** over photoresist ***mask*** of ***substrate*** and its ***portion*** not covered by the ***mask*** while concurrently ***removing*** ***portion*** of ***conformal*** layer

Patent Assignee: LAM RES CORP (LAMR-N)
Inventor: BRALY L B; VAHEDI V

Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030148224	A1	20030807	US 2001948392	A	20010906	200378	B
			US 2003378122	A	20030228		

Priority Applications (No Type Date): US 2003378122 A 20030228; US 2001948392 A 20010906
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030148224	A1		23	G03F-007/36	CIP of application US 2001948392

Abstract (Basic): US 20030148224 A1

NOVELTY - ***Removal*** of photoresist material from semiconductor ***substrate*** is controlled by forming ***conformal*** layer of ***polymer*** over photoresist ***mask*** of ***substrate*** and ***portion*** of ***substrate*** not covered by the ***mask*** while concurrently ***removing*** ***portion*** of the ***conformal*** layer of polymer. ***Thickness*** of ***conformal*** layer of polymer on each region of the ***substrate*** is set to vary depending on ***removal*** rate of ***conformal*** layer.

DETAILED DESCRIPTION - Control of a ***removal*** of a photoresist material from a semiconductor ***substrate*** includes providing the ***substrate*** having a photoresist ***mask***; forming a ***conformal*** layer of ***polymer*** over the photoresist ***mask*** and a ***portion*** of the ***substrate*** not covered by the photoresist ***mask*** while concurrently ***removing*** a ***portion*** of the ***conformal*** layer of polymer. A ***thickness*** of the ***conformal*** layer of polymer on each region of the ***substrate*** is set to vary depending on a ***removal*** rate of the ***conformal*** layer of polymer in each region of the ***substrate***.

USE - For controlling a ***removal*** of a photoresist material from a semiconductor ***substrate***.

ADVANTAGE - The inventive method trims a photoresist material from photoresist lines in semiconductor wafers while maintaining critical ***dimensions*** of the photoresist lines consistent throughout the semiconductor wafer and maximizing the resist budget of each line.

DESCRIPTION OF DRAWING(S) - The figure is a flow chart of a method operations for reducing profile variation and preserving resist budget in photoresist trimming.

pp; 23 DwgNo 5/8

Technology Focus:

TECHNOLOGY FOCUS - ELECTRONICS - Preferred Method: The method further comprises determining the ***removal*** rate of the ***conformal*** polymer layer in each region of the ***substrate***; and increasing the ***thickness*** of the ***portion*** of the ***conformal*** layer to be formed in the region of the ***substrate*** having a greater ***removal*** rate. An increased ***thickness*** of the ***portion*** of the ***conformal*** layer having the greater ***removal*** rate is ***removed*** to prevent the ***removal*** of the photoresist ***mask***. The ***thickness*** of the ***conformal*** layer is changed using a polymer inducing gas ***additive***. The

conformal layer defined in a center of the ***substrate*** is trimmed more or less than the ***conformal*** layer defined in edges of the ***substrate***. The ***conformal*** layer defined in the center and the edges of the ***substrate*** is trimmed such that the ***conformal*** layer in the center and edges of the ***substrate*** are uniform. The ***removal*** rate of the ***conformal*** layer is higher than a deposition rate of the ***conformal*** layer. The ***conformal*** layer is formed and ***removed*** in a plasma etching operation. It is formed using the polymer inducing gas ***additive***. The inducing gas ***additive*** is added to the plasma during etching to form a polymer precursor.
Derwent Class: A89; G06; L03; P84; U11
International Patent Class (Main): G03F-007/36

89/34/64 (Item 11 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015773768 **Image available**
WPI Acc No: 2003-835970/200378
Highly selective ionic lithography by an active interaction between multicharged and decelerated ions and the dielectric layer to be engraved and the selective neutralization of these ions outside the active interaction
Patent Assignee: X-ION (XION-N); X-ION SA (XION-N)
Inventor: LAZZARI J; LAZZARI J P
Number of Countries: 095 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
FR 2815770	A1	20020426	FR 200013507	A	20001023	200378	B
AU 200210637	A	20020506	AU 200210637	A	20011015	200378	
EP 1328967	A1	20030723	EP 2001978531	A	20011015	200378	
			WO 2001FR3188	A	20011015		
WO 200235596	A1	20020502	WO 2001FR3188	A	20011015	200378	

Priority Applications (No Type Date): FR 200013507 A 20001023
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
FR 2815770	A1		18	H01L-021/308	
AU 200210637	A			H01L-021/311	Based on patent WO 200235596
EP 1328967	A1	F		H01L-021/311	Based on patent WO 200235596

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200235596	A1	F		H01L-021/311	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

Abstract (Basic): FR 2815770 A1

NOVELTY - A method for engraving a ***thin*** dielectric layer laid on a semiconductor substrate (100) consists of:

(a) producing a configuration of engraving motifs (200);

(b) producing a selective interaction between some ions (10); and

(c) selectively absorbing by neutralization occurring between the ions of the beam and the mask facing these ions

DETAILED DESCRIPTION - A method for engraving a ***thin*** dielectric layer laid on a semiconductor substrate (100) consists of:

(a) producing a configuration of engraving motifs (200) through a mask formed on the dielectric layer (101) by insulation with ***deep*** or extreme ultraviolet radiation and revelation of a photosensitive resin (102) making up the mask;

(b) producing a selective interaction between some ions (10), from a beam of ***positive*** multicharged decelerated ions, and the dielectric layer that is visible following the revelation, the beam of a predetermined density ejects from this layer some grains of material (12) and forms them into zones (111) ***conforming*** to the motifs of the mask; and

(c) selectively absorbing by neutralization occurring between the ions of the beam and the mask facing these ions.

USE - The method is a highly selective ionic lithographic process for engraving dielectric layers laid on semiconductor substrates, for the fabrication of integrated circuits, memories with a high degree of integration and other micro-electronic components, notably those associated with micro-systems.

ADVANTAGE - The engraving obtained are highly selective, with several hundreds indeed several thousands, being able to be ***applied*** to all dielectric materials. The engraving produced has an aspect ration that is industrially acceptable with a micro-motif type resolution.

DESCRIPTION OF DRAWING(S) - The drawing illustrates the ionic engraving produced on a SiO2 dielectric layer on a silicon substrate.

Ions (10)
Accumulation of electric charges (11)
Grains of material ejected (12)
Silicon substrate (100)
Dielectric layer of SiO2 (101)
Photosensitive ***resin*** forming the ***mask*** (102)
Revealed zones in the dielectric layer (111)
pp; 18 DwgNo 1/2

Derwent Class: A85; L03; U11
International Patent Class (Main): H01L-021/308; H01L-021/311
International Patent Class (Additional): H01J-037/32; H01L-021/027

89/34/65 (Item 12 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015681460 **Image available**
WPI Acc No: 2003-743649/200370

Absorbent device such as catamenial tampons, comprises overwrap having lower portion of liquid impermeable material for ***contacting*** vaginal walls and upper portion of liquid permeable material
Patent Assignee: MCNEIL-PPC INC (MCNI); BUZOT H (BUZO-I)
Inventor: BUZOT H
Number of Countries: 101 Number of Patents: 009
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20020142693	A1	20021003	US 2001823045	A	20010330	200370	B
WO 200278587	A1	20021010	WO 2002US8867	A	20020321	200370	
NO 200304361	A	20031127	WO 2002US8867	A	20020321	200407	
			NO 20034361	A	20030929		
EP 1383454	A1	20040128	EP 2002757799	A	20020321	200409	
			WO 2002US8867	A	20020321		
BR 200208575	A	20040323	BR 20028575	A	20020321	200422	
			WO 2002US8867	A	20020321		
KR 2003093293	A	20031206	KR 2003712866	A	20030930	200425	
AU 2002338280	A1	20021015	AU 2002338280	A	20020321	200432	
CN 1507335	A	20040623	CN 2002809343	A	20020321	200461	
ZA 200308429	A	20050126	ZA 20038429	A	20031029	200513	

Priority Applications (No Type Date): US 2001823045 A 20010330
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020142693	A1		7	D04H-001/00	
WO 200278587	A1	E		A61F-013/20	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
NO 200304361	A			A61F-013/20	
EP 1383454	A1	E		A61F-013/20	Based on patent WO 200278587

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
BR 200208575	A			A61F-013/20	Based on patent WO 200278587
KR 2003093293	A			A61F-013/20	
AU 2002338280	A1			A61F-013/20	Based on patent WO 200278587
CN 1507335	A			A61F-013/20	
ZA 200308429	A		22	A61F-000/00	

Abstract (Basic): US 20020142693 A1

NOVELTY - An absorbent device (10) comprises an overwrap and an absorbent structure (AS) (40). The overwrap comprises an upper portion (30) of a liquid permeable material and a lower portion (20) of liquid impermeable materials. The upper and lower portions are joined (32) to form a container for the absorbent material. The lower portion ***contacts*** walls of vaginal cavity and AS comprising absorbent material.

USE - As absorbent device for insertion into a vaginal cavity such

as catamenial tampons having an overwrap and medical devices.
ADVANTAGE - The lower portion prevents leakage and bypass of bodily fluid from the absorbent device. The overwrap materials enables easy sack formation and sealing to lower portion, and provides qualities such as thermobondability, high tensile strength, high ***masking*** effect to prevent users from noticing absorbent material such as pledgets, tablets or pellets. The article has enhanced stability, as the upper and lower portions are attached/***adhered*** to ***one*** another to form a cohesive unit. When constructed and placed within the vaginal cavity, there is no relative movement between the vaginal walls and the tampon. The tampon ***conforms*** to the vaginal cavity and any contours. The tampon has a smooth ***surface*** such that no abrasion occurs when the tampon is inserted or removed.
DESCRIPTION OF DRAWING(S) - The figure shows an elevational view of the catamenial device.
Absorbent device (10)
Lower portion (20)
Upper portion (30)
Junction (32)
Absorbent structure (40)
pp; 7 DwgNo 1/2
Technology Focus:
TECHNOLOGY FOCUS - TEXTILES AND PAPER - Preferred Material: The absorbent material comprises a fibrous material. The fibrous absorbent material comprises a water soluble binding ***agent***. The absorbent material is a bondable fiber. The bondable fiber comprises cellulosic fibers comprising multi-limbed regenerated cellulosic fibers and/or non-limbed cellulosic fibers. The upper portion comprises a non-woven material.
POLYMERS - Preferred Film: The film is polyethylene, polypropylene, rubber and/or ***elastomers***.
Derwent Class: A96; D22; F07; P32; P73
International Patent Class (Main): A61F-000/00; A61F-013/20; D04H-001/00
International Patent Class (Additional): B32B-021/10; D04H-003/00; D04H-005/00; D04H-013/00

89/34/66 (Item 13 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015545673
WPI Acc No: 2003-607829/200357
Composite mask, used for producing diffuser, especially for display foil or architectural glass, has transparent film base coated with transparent polymer matrix containing light-absorbing pigment or metal microparticles
Patent Assignee: CLARIANT GMBH (CLRN); ALTHERR A (ALTH-I); HARADA T (HARA-I); KITA F (KITA-I); MENNIG M (MENN-I); OLIVEIRA P W (OLIV-I); SCHMIDT H (SCHM-I); ZIMMERMANN A (ZIMM-I)
Inventor: ALTHERR A; HARADA T; KITA F; MENNIG M; OLIVEIRA P W; SCHMIDT H; ZIMMERMANN A
Number of Countries: 030 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200350574	A1	20030619	WO 2002EP13846	A	20021206	200357	B
DE 10161200	A1	20030626	DE 10161200	A	20011213	200357	
EP 1459110	A1	20040922	EP 2002787915	A	20021206	200462	
			WO 2002EP13846	A	20021206		
KR 2004065244	A	20040721	KR 2004708927	A	20040610	200474	
US 20050008846	A1	20050113	WO 2002EP13846	A	20021206	200506	
			US 2004497766	A	20040604		
JP 2005512145	W	20050428	WO 2002EP13846	A	20021206	200530	
			JP 2003551574	A	20021206		
EP 1459110	B1	20050427	EP 2002787915	A	20021206	200532	
			WO 2002EP13846	A	20021206		
DE 50202956	G	20050602	DE 202956	A	20021206	200538	
			EP 2002787915	A	20021206		
			WO 2002EP13846	A	20021206		

Priority Applications (No Type Date): DE 10161200 A 20011213

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200350574	A1	G	18	G02B-005/00	
Designated States (National): CN JP KR SG US					
Designated States (Regional): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SI SK TR					
DE 10161200	A1			G03F-001/14	
EP 1459110	A1	G		G02B-005/00	Based on patent WO 200350574
Designated States (Regional): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SI SK TR					
KR 2004065244	A			G03F-001/14	
US 20050008846	A1			B32B-005/16	
JP 2005512145	W		15	G02B-005/02	Based on patent WO 200350574
EP 1459110	B1	G		G02B-005/00	Based on patent WO 200350574
Designated States (Regional): BE DE FR GB IT NL					
DE 50202956	G			G02B-005/00	Based on patent EP 1459110
					Based on patent WO 200350574

Abstract (Basic): WO 200350574 A1

NOVELTY - Composite mask consists of a transparent film base coated with a transparent polymer matrix containing light-absorbing pigment particles or metal particles with an average particle size d50 between 0.5 and 10 mum.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the production of the mask by dispersing the pigment or metal particles in a polymer matrix solution, coating a film base with the mixture and drying.

USE - The composite mask is used for producing a diffuser, especially for display foils and architectural glass (all claimed), where it acts as passive waveguide system to increase the viewing angle.

ADVANTAGE - Photomasks used for making diffuser foils consist of photographic gelatin on glass. The mask-making process is very time-consuming and costly and very susceptible to flaws (point

defects), the life of the mask is limited and the maximum format is only about 30 ***cm*** x 40 ***cm***. No continuous masks are available for making large display foils. The present mask is a cost-effective alternative to photomasks and can be scaled u to relatively large ***widths*** (e.g. 0.60 m or 1.20 m) and made in continuous form without great technical cost.

pp; 18 DwgNo 0/0

Technology Focus:

TECHNOLOGY FOCUS - IMAGING AND COMMUNICATION - Preferred Composition: The average size d50 of the pigment or metal particles is 1-5 (2-4) mum. Organic and inorganic pigments are suitable. The coating contains 0.5-10 vol.% pigment or metal particles.

INORGANIC CHEMISTRY - Preferred Pigments: Preferred inorganic pigments are antimony (Sb), bismuth (Bi), lead (Pb), cadmium (Cd), chromium (Cr), cobalt (Co), iron (Fe), indium (In), copper (Cu), manganese (Mn), nickel (Ni), mercury (Hg) and zinc (Zn) oxides; titanium (Ti) and zirconium (Zr) dioxides; Cd, molybdenum (Mo), Hg, silver (Ag) and Zn sulfides; barium (Ba), calcium (Ca), Co and strontium (Sr) sulfates; Ba, Pb, Ca, Sr and Zn carbonates; Pb and Zn chromates; Cu-Cr, Co-aluminum and Co-Cr oxides; Ba titanate; Prussian blue; Bi vanadate; Cr-Sb-Ti oxide; Mn violet; Mo blue or red; sulfur; Ti nitride; ultramarine; or tungsten blue pigment. Preferred metal particles consist of Sb, Bi, Cd, Cr, Co, Fe, gold, In, iridium, Cu, magnesium, Mn, Mo, nickel, osmium, palladium, platinum, rhodium, ruthenium, samarium, selenium, Ag, silicon, tantalum, Ti, vanadium, tungsten, Zn, Sn, Zr, bronze, brass or steel.

ORGANIC CHEMISTRY - Preferred Pigments: Preferred organic pigments are monoazo, disazo, laked azo, beta-naphthol, naphthol AS, benzimidazolone, disazo condensation, azo metal complex, phthalocyanine, quinacridone, perylene, perinone, thiazine-indigo, thioindigo, anthanthrone, anthraquinone, flavanthrone, indanthrone, isoviolanthrone, pyranthrone, dioxazine, quinophthalone, isoindolinone, isoindoline and diketopyyrrolopyrrole pigment, carbon black pigment and graphite

POLYMERS - Preferred Matrix: The matrix consists of polyvinyl acetate, polyvinyl alcohol, polyvinylbutyral, poly(meth)acrylate, polyepoxide or polyvinylpyrrolidone, optionally containing oligomers and/or monomers, or mixtures of these.

Preferred Film: The film base consists of polyester, cellulose acetate, polycarbonate, polypropylene, polyethylene or polymethyl methacrylate.

Extension Abstract:

EXAMPLE - 200 g diethylene glycol and then 359 g isopropanol were stirred into 2000 g 10% solution of Mowiol 18-88 (RTM; polyvinyl alcohol, PVA) in deionized water, giving PVA mixture (A). Graphite mixture (B) was prepared by stirring 12.8 g graphite KS 4 (RTM) into a solution of 1.3 g Tween 80 (RTM; emulsifier) in 200 g deionized water in 5.30 minutes, stirring for 10 minutes longer and ultrasonic treatment. 32.5 g (B) were stirred into 225 g (A), followed consecutively by 37.5 g isopropanol, 37.5 g ethanol and 3.3 g Byk 306 (RTM). This mixture was ***applied*** to polyester film (50 mum ***thick***) at a rate of 2 m/minute with a film coater (600 ***mm***

wide) and dried (1.5 minutes at 120degreesC, giving a composite mask. The mask was laminated on a photopolymer, exposed in a ***mask*** aligned (2 minutes with 350-450 ***nm*** UV) and fixed by total UV exposure (1 minute). The resultant diffuser film had a viewing angle of 16degrees and had very good optical ***conformity*** with a diffuser film (viewing angle 19degrees) made using a commercially-available photomask.
Derwent Class: A89; G02; L01; P73; P81; P84; V07; W05
International Patent Class (Main): B32B-005/16; G02B-005/00; G02B-005/02; G03F-001/14
International Patent Class (Additional): C08K-003/00; C08K-003/04; C08K-003/08; C08K-003/22; C08K-005/00; G02B-003/00; G02B-026/00

89/34/67 (Item 14 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015205136 **Image available**
WPI Acc No: 2003-265670/200326
Forming species pattern for forming articles, e.g., waveguides, involves allowing fluid precursor to harden at first region proximate substrate surface while leaving second region species free
Patent Assignee: JACKMAN R J (JACK-I); KIM E (KIME-I); MARZOLIN C (MARZ-I); MRKSICH M (MRKS-I); PRENTISS M G (PREN-I); SMITH S P (SMIT-I); WHITESIDES G M (WHIT-I); XIA Y (XIAY-I); ZHAO X (ZHAO-I); HARVARD COLLEGE (HARD)
Inventor: ***JACKMAN R J***; KIM E; MARZOLIN C; MRKSICH M; PRENTISS M G; SMITH S P; ***WHITESIDES G M***; XIA Y; ZHAO X
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20020066978	A1	20020606	US 96616929	A	19960315	200326	B
			US 9746689	P	19970516		
			US 984583	A	19980108		
			US 200116614	A	20011030		
US 6752942	B2	20040622	US 96616929	A	19960315	200442	
			US 9746689	P	19970516		
			US 984583	A	19980108		
			US 200116614	A	20011030		

Priority Applications (No Type Date): US 9746689 P 19970516; US 96616929 A 19960315; US 984583 A 19980108; US 200116614 A 20011030
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020066978	A1		49	B29C-039/10	CIP of application US 96616929
					Provisional application US 9746689
					Div ex application US 984583
US 6752942	B2			B29C-041/02	CIP of application US 96616929
					Provisional application US 9746689
					Div ex application US 984583
					Div ex patent US 6355198

Abstract (Basic): US 20020066978 A1
NOVELTY - Forming a species pattern at a defined region proximate a substrate surface comprises:
(1) forming a fluid precursor (36) of the species in a pattern corresponding to an indentation pattern at a first region proximate a contoured substrate surface (28) of an article (20) including at least one indentation (24) defining the pattern, and
(2) allowing the fluid precursor to harden.
DETAILED DESCRIPTION - Forming a species pattern at a defined region proximate a substrate surface comprises:
(1) forming a fluid precursor of the species in a pattern corresponding to an indentation pattern at a first region proximate a contoured substrate surface of an article including at least one indentation defining the pattern, and
(2) allowing the fluid precursor to harden in a pattern corresponding to the indentation pattern and in an area including a part having a lateral dimension of less than 1 mm, while leaving a second region proximate the substrate surface, contiguous with the first surface, free of the species.
USE - Used for forming micropatterned articles e.g. waveguides and cladding contacting the waveguides, ***masks*** for etching processes, sensors and switches on substrates, and mechanisms for microscale positioning of biologically active agents at predetermined regions of a surface. The process is also used for derivatizing surfaces biologically, chemically or physically, particularly for forming a combinatorial library.
ADVANTAGE - The method allows formation of very small scale structures conveniently, cheaply and reproducibly.
DESCRIPTION OF DRAWING(S) - The drawing shows an arrangement for derivatizing a surface in a predetermined pattern.
Article (20)
Application surface (22)
Indentations (24)
Contact surface (26)
Substrate (30)
Channels (32)
Fluid (36)
Fluid precursor (36)
pp; 49 DwgNo 1/28
Technology Focus:
TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Components: The fluid precursor comprises a solution or suspension of an inorganic compound, a suspension of particles in a fluid carrier or a chemically active agent in a fluid carrier. The particles comprise microbeads. The chemically agent is an agent promoting deposition of a metal.
Preferred Method: The forming step involves positioning the article proximate the substrate surface and applying the fluid precursor to the first region proximate the substrate surface via capillary action involving at least one indentation. The fluid precursor is hardened in an area including a part having a lateral dimension of less than 500 (preferably less than 100, especially less than 20) micro-m.
POLYMERS - Preferred Components: The chemically active agent is a

prepolymeric species and a polymeric article is formed from it.
Derwent Class: A32; A89; B04; J04; L03; U11
International Patent Class (Main): B29C-039/10; B29C-041/02

89/34/68 (Item 15 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014614175
WPI Acc No: 2002-434879/200246
Biocompatible material useful for e.g. controlling cellular growth comprises at least ***two*** component ***surface***
Patent Assignee: SURFARC APS (SURF-N); BIOSURF APS (BIOS-N); ALTANKOV G (ALTA-I); JANKOVA K (JANK-I); JONSSON G (JONS-I); THOM V (THOM-I); ULBRICHT M (ULBR-I)
Inventor: ALTANKOV G; JANKOVA K; JONSSON G; THOM V; ULBRICHT M
Number of Countries: 098 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200215955	A2	20020228	WO 2001DK557	A	20010823	200246	B
AU 200181758	A	20020304	AU 200181758	A	20010823	200247	
EP 1326655	A2	20030716	EP 2001960202	A	20010823	200347	
			WO 2001DK557	A	20010823		
US 20050053642	A1	20050310	WO 2001DK557	A	20010823	200519	
			US 2003362677	A	20030815		

Priority Applications (No Type Date): DK 20001250 A 20000823
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
WO 200215955 A2 E 217 A61L-033/00
Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
AU 200181758 A A61L-033/00 Based on patent WO 200215955
EP 1326655 A2 E A61L-027/14 Based on patent WO 200215955
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
US 20050053642 A1 A61L-033/00

Abstract (Basic): WO 200215955 A2
NOVELTY - Biocompatible material comprises a ***surface*** comprising at least ***two*** components such as a hydrophobic ***substratum*** and a macromolecule of hydrophobic nature.
DETAILED DESCRIPTION - Biocompatible material comprises a ***substratum*** (A) ***contacted*** by at least ***one*** macro-molecule. The material has a ***first*** advancing ***contact*** angle (a). (A) has a ***second*** advancing ***contacting*** angle b0 when not ***contacted*** by a macromolecule and another ***second***

advancing ***contact*** angle bsat, when the ***substratum*** is saturated by the macromolecules. The advancing ***contact*** angles are measured using water and air saturated by water vapor. The bsat does not change when the ***substratum*** is ***contacted*** by further macromolecules by a chemical bond. The relation between the advancing ***contact*** angles is R=(b0 - a)/(b0 - bsat) where R is 0 - less than 0.4.

INDEPENDENT CLAIMS are included for the following:

(1) use of the material in the manufacture of an implantable organ or its part; and

(2) producing the material by:

(i) ***contacting*** the ***substratum*** having a ***second*** ***contact*** angle with a composition comprising several macromolecules; and

(ii) providing a biocompatible material comprising a ***substratum*** ***contacted*** by several macromolecules.

ACTIVITY - Antiinfertility.

MECHANISM OF ACTION - None given.

USE - For controlling cellular growth, cellular proliferation, and/or cellular differentiation; separating and/or isolating biological material; producing a biohybrid organ; diagnosis or carrying out therapy, carrying out surgery of human or animal or their parts; as a carrier for in vivo delivery of a medicament to a human or animal body (claimed); as cell culture dishes, bioreactors, implants, biohybrid organs e.g. pacemaker etc.; to create bio-compatible ***surfaces*** suitable for use in emerging technologies e.g. the construction and ***application*** of the ***surface*** architectures of biomaterials with innovative functionalities such as bioartificial pancreas, liver or kidney; to improve the implantation rates after in vitro fertilization; to treat and/or prevent infertility or early pregnancy loss; to provide a container capable of mimicking an endomaterial environment of a female uterus; to enhance fertility potential of animal oocytes e.g. sports, zoo, pet and farm animals; in a dialysis membrane; for making tissue engineered constructs, valves and vessels; to provide polymer-based drug ***release*** systems e.g. systems based on implantable materials; for bone reconstruction with tissue engineering vascularized bone; for engineering composite bone and cartilage; to increase the mechanical strength and liability of e.g. heart valve leaflets and other engineered tissues; for growing vertebrate cells e.g. human cells including human skin cells; in skin grafting.

ADVANTAGE - (A) in cooperation with the macromolecule maintains, improves and/or stabilizes the biologically active form or its ***conformation***. The biologically active compound improves ***contact*** between the material and a biological entity e.g. biological cell or virus or their parts, including a polypeptide or its part, nucleic acid, carbohydrate and/or lipid. The material does not induce an acute or chronic inflammatory response and does not prevent a proper differentiation of implant surrounding tissue. The method is simple and inexpensive. The ***surfaces*** can be used as cell culture dishes, bioreactors, implants etc. without the need of extensive development of new polymers and biocompatibility screening, ensures

spatial separation of e.g. xenogenic and/or allogenic cells from the host immune system. The method increases the rate of maturation of immature oocytes and potential of fertilization of oocytes, minimizes incubation-time, and improves the quality of incubated oocytes. The degree of modification resulting from macromolecule including PEG attachment does not reduces the permeability of the membranes, thus suitable for the ***application*** as haemodialysis membrane. The tissue engineered constructs have improved mechanical strength and flexibility while retains biocompatible properties of the material. The valves and vessels withstand repeated stress and stirring.

pp; 217 DwgNo 0/31

Technology Focus:

TECHNOLOGY FOCUS - POLYMERS - Preferred Material: The ***first*** ***contact*** angle is 50 - 140 (preferably 60 - 125, especially 75 - 110, particularly 80 - 100)degrees. R is less than 0.3, preferably less than 0.26, especially less than 0.14, particularly less than 0.1). The material when ***contacted*** by a ***first*** determinant comprising a compound (a) is capable of maintaining (a) in a biologically active form. The ***first*** determinant is maintained in a biologically active form when ***contacted*** by (A) and/or the macromolecule. The material is biocompatible. The weight increase per ***area*** unit arising from the part of the macromolecule comprising PEG or poly(ethylene oxide) (PEO) is less than 2 (preferably less than 1.2, especially less than 0.8, particularly less than 0.3)/asterisk 10-22 g per square nm2. The macromolecule is associated with an excluded volume. The material further comprises a ***second*** determinant comprising a biological entity (e).

Preferred ***Substratum*** - (A) is poly(lactide), poly(glycolic acid), poly(lactide-co-glycolide), poly(caprolactone), polycarbonate, polyamide, polyanhydride, polyamino acid, polyortho ester, polyacetal, polycyanoacrylate, degradable polyurethane, polyacrylate, ethylene-vinyl acetate polymer or its other acyl substituted cellulose acetate or its derivative, non-erodible polyurethane, polystyrene, polyvinyl chloride, polyvinyl fluoride, poly(vinyl imidazole), chlorosulfonated polyolefin, polyethylene oxide, polyvinyl alcohol, teflon, nylon, homo- or co-polymer of linear low density polyethylene, low density polyethylene (LDPE), high density polyethylene (HDPE), ethylene/vinylacetate, ethylene-methyl-acrylate, ethylene-acrylic acid, ethylene-butyl-acrylate, ethylene-ethyl-acrylate, polypropylene (PP), ethylene-propylene copolymer or ethylene-propylene-diene terpolymer (preferably polyethylene, HDPE, LDPE, PP or poly(4-methyl-iso-pentene)). (A) comprises polycarbonate, polystyrene or their derivatives, or a hydrophobic polymer. (A) has an advancing ***contact*** angle of more than 90degrees. (A) is pretreated or modified by ***contacting*** and/or operable linking to a charged group or hydrophilic compound by corona or plasma treatment to increase the wettability of (A). (A) is further ***contacted*** by several soluble substances capable of forming a self-assembled monolayer having at least ***one*** macromolecule. (A) is a film, which is flexible, rigid or non-flexible. (A) comprises a crystalline structure capable of supporting a self-assembled monolayer. (A) is porous membrane or non-porous and/or non-penetrable to water. The flux water through the

material is unchanged as compared to the flux of water through the porous (A).

Preferred Components: The soluble substances are 8-24C n-alkane chains. The macromolecule comprises an amphiphilic polymer. The macromolecule has Mw of more than 400 (preferably more than 2000, especially more than 10000, particularly more than 100000) Dalton. The macromolecule is a conjugate comprising a head group (or a cross-linkable head group), guiding group, linker group, polymer chain or a main body and a functional end group (preferably a head group, linker group, polymer chain or main body and a functional end group, especially head group, a polymer chain or main body and a functional end group). The head group is capable of forming a chemical bond, absorbing to the spectrum, forming an ionic bond, forming a self-assembled monolayer or may be entangled into or with (A). The cross-linkable head group is photo-reactive aryl/azide head group. The guiding group is a bifunctional group comprising an aliphatic, linear or weakly branched group. The linker group is capable of being enzymatically or chemically hydrolyzed and is hydrolytically unstable and capable of being cleaved or is stable against cleavage under practical circumstances. The polymer chain or main body is hydrophilic, uncoiling in an aqueous environment and exhibiting an excluded volume. The functional end group is capable of linking permanently or reversibly other biological or synthetic molecules or materials. The macromolecule further comprises a modifying ***agent*** capable of ***contacting*** the ***substratum*** and forming a self-assembled monolayer.

Preferred Method: Production of the material further involves ***contacting*** the material with a ***first*** determinant comprising the biologically active compound and ***contacting*** the material with a ***second*** determinant comprising a biological entity.

INORGANIC CHEMISTRY Preferred Components: The self-supporting monolayer is gold, silicon oxide, similar crystalline structures and/or structures that are smooth on a ***nanometer*** scale.

BIOLOGY - Preferred Components: The ***first*** determinant comprises a biologically active compound (b). (a) or (b) comprises a polypeptide, nucleic acid, carbohydrate, and/or lipid. (b) is selected from membrane associated and/or extracellular matrix polypeptides natively produced by a microbial cell, a plant cell or a mammalian cell, a polypeptide (preferably synthetic polypeptide or its part, or adhesive polypeptide, especially fibronectin or vitronectin), antibody, polyclonal antibody, monoclonal antibody, immunogenic determinant, antigenic determinant, receptor, receptor binding protein, interleukine, cytokine, cellular differentiation factor, cellular growth factor or antagonist to a receptor. (e) is a biological cell, virus or their parts, including a polypeptide, nucleic acid, carbohydrate, and/or lipid. (e) is selected from a polypeptide, antibody, polyclonal antibody, monoclonal antibody, immunogenic determinant, antigenic determinant, receptor, receptor binding protein, interleukin, cytokine, differentiation factor, growth factor or antagonist to the receptor. The biological cell or its part is mammalian cell e.g. human cell or animal cell, plant cell, microbial cell e.g. eukaryotic microbial cell such as yeast or fungus, and

prokaryotic microbial cell e.g. bacteria (preferably a mammalian cell). The virus or its part is mammalian virus e.g. human or animal virus, plant virus, microbial virus e.g. eukaryotic microbial virus such as yeast virus and fungal virus and prokaryotic microbial virus e.g. bacteriophage (preferably a mammalian virus).

Extension Abstract:

WIDER DISCLOSURE - Following are also disclosed:

(1) a dialysis apparatus comprising at least ***one*** dialyzer with a membrane containing the material and dividing the dialyzer into a ***first*** chamber and a ***second*** chamber. The fist chamber is in a ***first*** circuit ***contact*** with a single lumen catheter and a storage device and comprising a device for supplying a dialysis fluid. The ***second*** chamber is connected via a ***second*** circuit with a device for preparing the dialysis fluid. The ***second*** circuit comprises a pump and a dialysis filter divided by the member. The ***first*** chamber of the dialysis filter is in the ***first*** circuit. The ***second*** chamber of the dialysis filter is connected with the catheter; and

(2) a transplantation or implantation device comprising a hollow fiber comprising the material, and a mixture of viable cells suspended within the fiber. The fiber has ends and fiber wall.

EXAMPLE - 4-Azidobenzoic acid was prepared from 4-aminobenzoic acid, which was diazotized with sodium nitrate. The carboxylic acid was converted into the 4-azido benzoyl chloride with thionyl chloride. Dimethylaminopyridine (0.23 g) in dry methylene (10 ml) was mixed with triethylamine (0.17 ml). The solution was cooled to 0 degrees C, 4-azidobenzoyl chloride (0.57 g) in CH2Cl2 (10 ml) was added followed by addition of MPEG (6.25 g) in dry CH2Cl2 (5 kDa) in dry CH2Cl2 (50 ml). The temperature was raised to room temperature and stirred overnight, filtered and alpha-4-azidobenzoyl-omega-methoxypoly(ethylene glycol) (A)(74%). Glass coverslips and slides were cleaned, hydrophobized, PSf spin-coated, and (A)(10 kDa) were modified. The coverslips were comparted by ***applying*** flexiperm silicon ***mask*** dividing the ***polymer*** ***surface*** into 8 wells. Human fibroblast (HF) were cultivated and harvested in a concentration of 20000/well. The cells were seeded into the well and incubated at 27 degrees C and 5% CO2 upto 7 days. XTT and LDH assays were performed. The assay confirmed a maximum proliferation of PSf modified at 0.01 - 0.1 g/l of (A)(10 kDa) concentration. However the assays shows a much less pronounced maximum as compared with the phase contrast photographs. Pronounced cellular ***adherence*** and proliferation was observed for the contrast line of the silicon with the underlying PSf ***substratum***.

Derwent Class: A18; A23; A25; A96; B04; B07; D16; D22; P34

International Patent Class (Main): A61L-027/14; A61L-033/00

International Patent Class (Additional): A61L-027/34; A61L-029/04; A61L-029/08; A61L-031/04; A61L-031/08

89/34/69 (Item 16 from file: 350)

DIALOG(R)File 350:Derwent WPIX

014560922 **Image available**
WPI Acc No: 2002-381625/200241
Removal of photoresist material from semiconductor substrate, by forming polymeric material layer on top of patterned photoresist mask of substrate, and ***removing*** polymeric material layer and ***portion*** of patterned mask
Patent Assignee: MELAKU Y (MELA-I); VAHEDI V (VAHE-I); LAM RES CORP (LAMR-N)
Inventor: MELAKU Y; VAHEDI V
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20020018965	A1	20020214	US 99340070	A	19990625	200241	B
			US 2001948392	A	20010906		
US 6653058	B2	20031125	US 99340070	A	19990625	200378	
			US 2001948392	A	20010906		

Priority Applications (No Type Date): US 99340070 A 19990625; US 2001948392 A 20010906
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020018965	A1		12	G03F-007/00	Cont of application US 99340070
					Cont of patent US 6316169
US 6653058	B2			G03F-007/36	Cont of application US 99340070
					Cont of patent US 6316169

Abstract (Basic): US 20020018965 A1
NOVELTY - A photoresist material is ***removed*** from a semiconductor substrate by providing substrate having a patterned photoresist ***mask***. A ***polymeric*** material layer is formed on top of the patterned photoresist ***mask***. The ***polymeric*** material layer and a ***portion*** of the patterned photoresist mask are then ***removed***.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of forming a semiconductor device comprising
(i) providing semiconductor substrate;
(ii) forming an intermediate layer(s) over the substrate;
(iii) forming patterned photoresist mask over the intermediate layers;
(iv) patterning the patterned photoresist mask;
(v) forming a ***conformal*** layer of varying ***thickness*** comprising polymeric material over the patterned photoresist mask; and
(vi) ***removing*** the polymeric material layer and ***portions*** of the patterned photoresist mask.
USE - For the ***removal*** of photoresist material from semiconductor substrate.
ADVANTAGE - The method allows trimming of photoresist material while reducing the variation of critical ***dimension*** between photoresist lines and maximizing photoresist budget.
DESCRIPTION OF DRAWING(S) - The figure is a flow chart for reducing profiles variation and preserving resist budget in photoresist

trimming.
pp; 12 DwgNo 5/5
Technology Focus:
TECHNOLOGY FOCUS - ELECTRONICS - Preferred Method: The polymeric material layer is formed by introducing a process gas comprising fluorocarbon or hydrocarbon gas (preferably hydrogen bromide or chlorine) into a plasma environment. It is formed with less ***thickness*** in a low aspect ratio ***area*** relative to a high aspect ratio ***area***. The ratio of the ***thickness*** of the polymeric material layer in the high aspect ratio ***area*** relative to the low aspect ***area*** is less than 1:1. The polymeric material layer and the ***portion*** of patterned mask are ***removed*** by plasma etch using oxygen or nitrogen ions. The patterned photoresist mask is patterned by photolithography.
Derwent Class: A89; G06; L03; P78; P84; U11
International Patent Class (Main): G03F-007/00; G03F-007/36
International Patent Class (Additional): B44C-001/22; H01L-021/311

89/34/70 (Item 17 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014308726 **Image available**
WPI Acc No: 2002-129429/200217
Removal of photoresist material from semiconductor substrate, involves forming polymeric layer on patterned photoresist mask, with less ***thickness*** in high aspect ratio ***area*** relative to low aspect ratio ***area***
Patent Assignee: LAM RES CORP (LAMR-N)
Inventor: MELAKU Y; VAHEDI V
Number of Countries: 002 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6316169	B1	20011113	US 99340070	A	19990625	200217	B
TW 490712	A	20020611	TW 2000112429	A	20000921	200321	

Priority Applications (No Type Date): US 99340070 A 19990625
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6316169	B1		12	G03F-007/00	
TW 490712	A			H01L-021/00	

Abstract (Basic): US 6316169 B1
NOVELTY - A polymeric material layer (24) is formed over patterned photoresist mask (18) of semiconductor substrate (10'). The polymeric material layer is formed with less ***thickness*** in high aspect ratio ***area*** (28,30) relative to low aspect ratio ***area***. A ***portion*** of polymeric material layer and ***portion*** of patterned photoresist mask are ***removed***.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for forming semiconductor device. Several intermediate layers

(15) are formed on substrate on which a photoresist mask is provided which is patterned to form a patterned photoresist mask. A ***conformal*** layer of varying ***thickness*** composing polymeric material is formed over the ***mask***. A part of ***polymeric*** material layer and a part of patterned photoresist mask are ***removed***.

USE - For ***removing*** photoresist material from semiconductor substrate during manufacture of semiconductor device.

ADVANTAGE - The photoresist material is ***removed*** from photoresist lines in wafers efficiently, while maintaining a consistent critical ***dimension*** and maximizing resist budget of each line. The polymeric material layer enables preservation of resist budget of pattern photoresist mask while ***removing*** the ***portion*** of ***polymeric*** layer and photoresist ***mask***. The method offers semiconductor devices with interconnections of less than 0.18 ***microns*** ***wide*** without damaging such interconnections during fabrication. Operation speed of semiconductor device and feature sizes within the device are improved and fabrication is easier. Errors during fabrication which leads to reduction in speed, a failure of device are prevented.

DESCRIPTION OF DRAWING(S) - The figure shows formation of ***conformal*** polymer film on patterned photoresist layer.

Semiconductor wafer (10')
Intermediate layers (15)
Patterned photoresist layer (18)
Polymeric material layer (24)
High aspect ratio ***areas*** (28,30)
pp; 12 DwgNo 3A/5

Technology Focus:

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Method: The polymeric material layer is formed by introducing process gas such as fluorocarbon gas or hydrocarbon gas into a plasma environment. The part of polymer material layer and patterned photoresist mask are ***removed*** by plasma etch which includes oxygen ions and nitrogen ions. Photoresist mask is patterned by photolithography. The ***thickness*** of polymeric layer in high aspect ratio ***area*** is controlled by choosing a deposition precursor according to stickiness.

Derwent Class: A89; G06; L03; P84; U11
International Patent Class (Main): G03F-007/00; H01L-021/00

89/34/71 (Item 18 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014189891 **Image available**
WPI Acc No: 2002-010588/200201

Patterning of cells used for observing, e.g. cell growth or spreading, involves shielding article surface with ***masking*** system comprising cohesive ***mask***, and applying agent through channel within the ***masking*** system

Patent Assignee: HARVARD COLLEGE (HARD); DUFFY D C (DUFF-I); JACKMAN R J

(JACK-I); KANE R (KANE-I); OSTUNI E (OSTU-I); WHITESIDES G M (WHIT-I)
Inventor: DUFFY D C; ***JACKMAN R J***; KANE R; OSTUNI E; ***WHITESIDES G M***
Number of Countries: 096 Number of Patents: 007
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200170389	A2	20010927	WO 2001US8206	A	20010315	200201	B
US 20010055882	A1	20011227	US 2000190399	P	20000317	200206	
			US 2001808745	A	20010315		
AU 200143656	A	20011003	AU 200143656	A	20010315	200210	
EP 1265994	A2	20021218	EP 2001916661	A	20010315	200301	
			WO 2001US8206	A	20010315		
JP 2003527615	W	20030916	JP 2001568574	A	20010315	200362	
			WO 2001US8206	A	20010315		
US 6893850	B2	20050517	US 2000190399	P	20000317	200533	
			US 2001808745	A	20010315		
US 20050158880	A1	20050721	US 2000190399	P	20000317	200548	
			US 2001808745	A	20010315		
			US 200560631	A	20050217		

Priority Applications (No Type Date): US 2000190399 P 20000317; US 2001808745 A 20010315; US 200560631 A 20050217
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200170389	A2	E	40	B01J-019/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20010055882	A1			H01L-021/311	Provisional application US 2000190399
AU 200143656	A			B01J-019/00	Based on patent WO 200170389
EP 1265994	A2	E		C12N-011/06	Based on patent WO 200170389

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 2003527615	W		45	G01N-033/48	Based on patent WO 200170389
US 6893850	B2			B32B-031/00	Provisional application US 2000190399
US 20050158880	A1			H01L-021/00	Provisional application US 2000190399
					Cont of application US 2001808745
					Cont of patent US 6893850

Abstract (Basic): WO 200170389 A2

NOVELTY - Cells (24) are patterned by shielding a first surface portion (12) of an article (10) with ***masking*** system comprising a cohesive ***mask*** (16) conformally contacting with the surface; and applying an agent (20) through a channel (18) within the ***masking*** system to a second surface portion (14) of the article while preventing application of the agent to the first surface of the article.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an

article comprising two types of cell patterns contiguous with each other.

USE - For patterning cell used for observing cell growth or spreading, chemotaxis, haptotaxis, morphogenesis, or the patterning of cell types.

ADVANTAGE - The method provides cell patterns without the aid of photolithographic steps. It is carried out in simple and inexpensive manner. The ***masking*** system is flexible for patterning on substrates of any shape, and has rigidity to be reused.

DESCRIPTION OF DRAWING(S) - The figure is a schematic diagram of a ***masking*** system for patterning cells to an article surface.

Article (10)
Surface portion (12, 14)
Mask (16)
Channel (18)
Agent (20, 22)
Cells (24)
pp; 40 DwgNo 1/9

Technology Focus:

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Component: The ***masking*** system comprises a flexible ***mask*** including two surfaces that are connected by a channel that passes through the ***mask*** and connecting the two surfaces. The channel has dimension for controlling the growth of a single cell. Preferred Method: The method also includes removing the ***masking*** system from the article prior to application of cells to the agent. A second agent (22) is also added to the first surface. A portion of the ***masking*** system is pre-coated with a second agent prior to shielding. Pre-coating involves contacting the first surface with a substrate, and coating the second agent to the second surface and the channels. The ***masking*** system is removed from the substrate, and then the first surface is brought into conformal contact with the surface of the article. A third agent may also be added to the first portion of the surface of the article. The cell applied to the first agent is allowed to spread to the third agent.

BIOLOGY - Preferred Component: The first agent is a cell-adhesion promoter or a fibronectin, while the second and third agent is a cell-adhesion inhibitor.

POLYMERS - Preferred Material: The ***masking*** system is made from polydimethylsiloxane.

Extension Abstract:

EXAMPLE - Drops of cell-adhesion promoter, buffered fibronectin (50mug, polybutenesulfone (PBS) with pH of 7.4) or gelatin (1.5 w/v, PBS with pH of 7.4) solutions were placed on a membrane adhered to a substrate. Vacuum was applied and released twice to extract the air trapped in the pores. The protein was allowed to absorb to the surfaces for an hour (in case of fibronectin, FN) or for 15 minutes (in case of gelatin). The assembly of the membrane and the substrate was then rinsed with buffer 3 times. The membrane was removed from the surface in the presence of control media that contained 1 w/v % bovine serum albumin. After 15 minutes, fresh media was introduced into the dish, followed by a suspension of cells, thus patterning proteins on

substrates.
Derwent Class: A89; B04; D16; P73
International Patent Class (Main): B01J-019/00; B32B-031/00; C12N-011/06; G01N-033/48; H01L-021/00; H01L-021/311
International Patent Class (Additional): C12N-001/00; C12N-011/08; C12N-011/14

89/34/72 (Item 19 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013889972
WPI Acc No: 2001-374185/200139
Manufacturing microfabricated ***channel*** networks, used in, e.g. biological and chemical research, by depositing polymer layer on a substrate, ***removing*** ***portion*** of polymer layer, and overlaying a ***second*** planar substrate
Patent Assignee: CALIPER TECHNOLOGIES CORP (CALI-N)
Inventor: CHAZAN D
Number of Countries: 021 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200117797	A1	20010315	WO 2000US24046	A	20000901	200139	B
AU 200071010	A	20010410	AU 200071010	A	20000901	200139	

Priority Applications (No Type Date): US 99394012 A 19990910
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200117797	A1	E	32	B44C-001/22	
AU 200071010	A				Based on patent WO 200117797

Designated States (National): AU CA JP
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Abstract (Basic): WO 200117797 A1
NOVELTY - Manufacturing a microfabricated ***channel*** network, by depositing a polymer layer on a ***surface*** of a planar substrate., is new. A ***portion*** of the polymer layer is ***removed*** to expose an ***area*** of the substrate's ***surface***. A ***second*** planar substrate layer is overlaid on the polymer layer to seal grooves provided in the polymer layer as ***channels*** in a desired ***channel*** pattern.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(1) a microfluidic device comprising a photoimagable polymer layer on a substrate ***surface***, and a ***second*** planar substrate mated with, and overlaying, the photoimagable polymer layer;
(2) a microfluidic device comprising a non-ablatable layer having an ablatable polymer layer on its ***surface***, and a ***second*** planar substrate layer mated with, and overlaying the photoimagable polymer layer, the polymer layer has a groove laser ablated entirely

through it in a desired location; and
(3) an analytical system comprising a microfluidic device, and a detector for detecting signals from the material.
USE - For manufacturing microfabricated ***channel*** network used in biological and chemical research, pharmaceutical screening, chemical synthesis, and analysis, diagnostics, and environmental analysis. The microfluidic devices are also used in conjunction with other instrumentation as an integrated system.
ADVANTAGE - The method of the invention provides a less expensive, less defect prone and more versatile process for manufacturing microscale devices.
pp; 32 DwgNo 0/3
Technology Focus:
TECHNOLOGY FOCUS - ELECTRONICS - Preferred Method: The ***removal*** step comprises exposing regions of the photoimagable polymer layer to electromagnetic radiation, and ***removing*** a ***portion*** of the photoimagable polymer layer. The exposing step comprises directing a light source at the photoimagable ***polymer*** layer through a ***mask***, which comprises transparent regions corresponding to the ***channels*** of the desired pattern. The irradiating step comprises directing light of 190-430 ***nm*** at the photoimagable polymer layer. The depositing step comprises spin coating, laminating, or spray coating the photoimagable polymer into the ***first*** ***surface***. The overlaying step comprises bonding the ***second*** substrate to the photoimagable polymer.
Preferred Components: The light source comprises a ***coherent*** light source, or laser. The substrate is glass, quartz, fused silica, silicon, or a non-ablatable polymeric substrate. The groove comprises an aspect ratio (***depth***:***width***) greater than 2, preferably greater than 10. The microfluidic device comprises at least ***two*** intersecting grooves.
POLYMERS - Preferred Components: The photoimagable polymer comprises a ***positive*** resist or a negative resist. The photoimagable polymer can be photoimagable polyimides, photoimagable benzocyclobutenes, photoimagable epoxies, novolac based ***positive*** photoresist, or cardo type photopolymers. The polymer layer can be polymethacrylate, polycarbonate, polytetrafluoroethylene, polyvinylchloride, polydimethylsiloxane, polysulfone, polystyrene, polymethylpentene, polypropylene, polyethylene, polyvinylidene fluoride, or acrylonitrile-butadiene-styrene copolymer.
Preferred Properties: The photoimagable layer is 1-100, preferably 5-50 micro-m ***thick***.
Derwent Class: A89; B04; G06; P78
International Patent Class (Main): B44C-001/22

89/34/73 (Item 20 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013521824 **Image available**
WPI Acc No: 2001-006030/200101

Fabrication of landing pads for dynamic random access memory cells, e.g. for use in computer industries, involves polymer and polysilicon etching using a ***polymer*** layer as a ***mask*** and using caps as stopping layers
Patent Assignee: WORLDWIDE SEMICONDUCTOR MFG CORP (WORL-N)
Inventor: KUO M; LINLIU K
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6121082	A	20000919	US 99301482	A	19990428	200101	B

Priority Applications (No Type Date): US 99301482 A 19990428
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6121082	A		16	H01L-021/8242	

Abstract (Basic): US 6121082 A

NOVELTY - Landing pads for dynamic random access memory (DRAM) cells are fabricated by using polymer layer and nitride caps, as mask and stopping layers, respectively. Polymer etching and polysilicon etching are performed to generate the landing pads.

DETAILED DESCRIPTION - Fabrication of landing pads for DRAM cells involves providing a semiconductor substrate with isolation regions (103) separating periphery transistor (115) region from a defined DRAM region (104), which consists of stack gates (125) and source/drain regions (116). The periphery transistor regions, the isolation regions and the DRAM region are overlaid with a dielectric layer.

The ***first*** dielectric layer is patterned so that the defined DRAM region is exposed with the source/drain regions, nitride caps (120) and spacers (117) of the stack gates.

A conductive layer (135) is formed on all resulting ***surfaces*** of the defined DRAM regions, isolation regions, and periphery transistor regions, followed by forming a photoresist pattern (145) on this conductive layer to define photoresist openings over the etched nitride cap of the stack gates.

A polymer layer is formed on the photoresist pattern and conductive layer of the periphery transistor region. It is ***conformally*** formed on the photoresist openings to form a smaller polymer opening on the photoresist openings.

Anisotropic conductive layer etching is performed so that polymer spacers are formed in each of the photoresist openings, and a ***portion*** of the polymer layer on the conductive layer of the periphery transistor region is ***removed***.

Anisotropic conductive layer etching is then performed using the ***polymer*** spacers as ***mask*** and the capping layer as the stopping layer so that the conductive layer is separated into landing pads on the defined DRAM region.

USE - For fabricating landing pads for dynamic random access memory cells for use in, e.g. computer and electronic industries.

ADVANTAGE - The invention provides a simplified lithographic method that reduces ***two*** oxide film deposition and twice oxide etch so that cost decreases. It has 0.1 ***microns*** critical ***dimensions***

, which break through the maximum limitation that the 248 ***nm*** ***deep*** ultraviolet light could approach. In situ deposition, polymer etch and polysilicon etch are implanted in the same reactor so that process is simplified while forming spacers of periphery transistors avoiding short circuits.

DESCRIPTION OF DRAWING(S) - The figure shows a cross-***sectional*** view of the DRAMs.

Isolation regions (103)
Defined DRAM region (104)
Transistor (115)
Source/drain regions (116)
Nitride spacers (117)
Nitride caps (120)
Stack gates (125)
LPTEOS layer (128)
Conductive layer (135)
Photoresist pattern (145)
pp; 16 DwgNo 9/10

Technology Focus:

TECHNOLOGY FOCUS - ELECTRONICS - Preferred Process: A substrate is placed, forming recipe into a plasma reactor using polymer. Recipes are formed and etched to deposit a polymer and form a polymer layer of 0.05-0.15 ***microns*** ***thickness***. The substrate is a resultant substrate after the photoresist pattern is formed.

POLYMERS - Preferred Conditions: The polymer forming recipe has a source power of 100-1900 watt, a bias power of 0-0.5 watt, a pressure of 1-100 mTorr, while the etching recipe has a source power of 200-350 watt, a bias power of 50-200 watt, and a pressure of 4-70 mTorr, in the pressure plasma reactor of 3-20 mTorr, and a gas mixture of chlorine and HBr flowing at 10-900 sccm, and 20-150 sccm, respectively, and a ***first*** gate mixture flowing of CxHyFz (preferably trifluoromethane (CHF3), or methyl fluoride (CH3F)) gas at 1-100 sccm, and helium (He) of 1-100 sccm. A ***second*** gas mixture of hydrogen bromide (HBr), oxygen (O2), and He, is flowing at 1-190 sccm, 1-80 sccm, and 1-100 sccm, respectively. The photoresist opening is 0.25-0.35 ***microns*** ***wide***.

INORGANIC CHEMISTRY - Preferred Materials: The capping layer is formed of silicon nitride. The dielectric layer is a high-density plasma (HDP) oxide or silicon oxide layer.

ORGANIC CHEMISTRY - Preferred Materials: The dielectric layer is formed from low-pressure tetraethyl orthosilicate (LPTEOS) (128

Derwent Class: A85; L03; U11; U13
International Patent Class (Main): H01L-021/8242

89/34/74 (Item 21 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013429907 **Image available**
WPI Acc No: 2000-601850/200057
Flexible, weatherable decorative sheet for providing ***exterior***

finish in automobile parts comprises a decorative paint film and an extensible ***mask*** ***adhered*** to the film
Patent Assignee: REXAM IND CORP (REXA-N)
Inventor: FIELDS R T; HUFFER S
Number of Countries: 090 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200051799	A1	20000908	WO 2000US40003	A	20000216	200057	B
AU 200032495	A	20000921	AU 200032495	A	20000216	200065	

Priority Applications (No Type Date): US 99259699 A 19990301
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200051799	A1	E	42	B29C-037/00	
AU 200032495	A			B29C-037/00	Based on patent WO 200051799

Designated States (National) (WO 200051799): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional) (WO 200051799): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

Abstract (Basic): WO 200051799 A1

NOVELTY - A flexible, weatherable decorative sheet material (1) comprises a decorative paint film (2) and an extensible ***mask*** (3) ***releasably*** ***adhered*** to the outer ***surface*** of (2) to form a protective film above (2). (3) comprises a film forming polymer containing at least ***one*** migrating ***additive***.

DETAILED DESCRIPTION - A flexible, weatherable decorative sheet material (1) comprises a decorative paint film (2) and extensible ***mask*** (3) ***releasably*** ***adhered*** to the outer ***surface*** of (2) to form a protective film above (2). (2) has an inner and a weatherable outer ***surface*** for forming an ***exterior*** finish on a part (4) (preferably automobile body part). (3) comprises a film forming polymer composition (5) containing at least ***one*** migratory ***additive*** (6).

INDEPENDENT CLAIMS are also included for the following:

(A) manufacturing (1) which involves:

(i) ***applying*** a coating comprising (5) onto a casting ***surface***;

(ii) drying the coating to form a continuous ***polymer*** ***mask*** ***releasably*** ***adhered*** to the casting ***surface***;

(iii) forming (2) having an inner ***surface*** and an outer ***surface***;

(iv) ***releasably*** bonding the outer ***surface*** to the exposed ***surface*** of (3) to form a composite laminate; and

(v) heating the laminate to migrate (6) into (2);

(B) a preform for in-mold ***surfacing*** of (4) which comprises (1) heated and formed into a three-***dimensional*** configuration; and

(C) a composite shaped part comprising the preform and a ***substrate*** of a thermoplastic polymer, ***conforming*** to the

three ***dimensional*** configuration of the preform by ***adhering*** to it.

USE - As a flexible, weatherable paint film for providing an ***exterior*** decorative finish for parts (particularly automobile body parts) (claimed). The decorative sheet material can also be ***adhered*** to metal, wood and molded polymer ***substrates***.

ADVANTAGE - The sheet materials reduces the environmental concerns associated with painting, and also reduces the manufacturing cost involved in automobile body parts production. The use of the ***mask*** layer enhances the performance and appearance of the clear coat. The ***additives*** to the clear coat are distributed uniformly. The sheet material show excellent performance and appearance such as weatherability, resistance to ultraviolet light degradation, high gloss and high distinctness of images.

DESCRIPTION OF DRAWING(S) - The figure is a cross-***sectional*** view of a decorative sheet material

decorative paint film (18)
mask layer (20)
clear coat layer (22)
color coat layer (24)
primer layer (26)
adhesive layer (28)
thermoformable backing layer (30)
non-extensible carrier. (34)
pp; 42 DwgNo 5/10

Technology Focus:

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - (6) is selected from hardness ***enhancers*** (preferably crosslinking ***agents*** e.g. melamine or polyisocyanate), ***release*** ***agents*** (e.g. wax or silicone), ultraviolet light ***stabilizers*** (e.g. of benzotriazole, triazine or benzophenone type), antioxidants, dyes (e.g. a fluorescing ***agent*** printed on the ***mask*** layer in the form of a graphic design), lubricants, ***surfactants***, catalysts (e.g. p-toluenesulfonic acid) and/or slip ***additives***. The ***release*** ***agent*** imparts a reduced coefficient of friction to the exposed ***surface*** of (3) and to the outer ***surface*** of (2).

POLYMERS - Preferred Material: (2) comprises an inner single layer of a pigmented polymer (preferably an acrylic polymer) and a clear coat outer layer of a transparent weatherable polymer (preferably a fluoropolymer composition). The outer ***surface*** of (2) has a 60 degree gloss value of at least 65. (3) is polyurethane, polyolefin, polyester or polyamide. (3) has a ***thickness*** of about 0.3 - 3 mils. (1) additionally includes a non-extensible carrier layer (preferably a polyethylene terephthalate film) ***releasably*** ***adhered*** to (3), a thermoformable backing layer bonded to the inner ***surface*** of (2), and an adhesive layer fixing (2) to the backing layer. The backing layer is thermoplastic olefin, acrylonitrile-butadiene-styrene terpolymer, polypropylene, thermoplastic polyimide, polyethylene oxide, polycarbonate, polyvinyl chloride, polystyrene, styrene/polyphenylene oxide, polybutylene terephthalate, nylon, PETG copolyester and/or laminates and their copolymers. The adhesive layer is formed from urethane adhesive,

chlorinated polyolefin and/or acrylic adhesive.

Preferred Preform: The preform comprises a laminate which has been heated and formed into three ***dimensional*** configuration.

Preferred Method: Step (i) is carried out by ***applying*** a coating of a water-borne polyurethane polymer dispersion on to the casting ***surface***. Step (ii) is carried out by heating the coating to evaporate the water content. Step (iii) is performed by ***applying*** at least ***one*** coating later to a smooth flexible casting ***surface***, and drying the coating layer to produce (2). The outer ***surface*** of (2) is ***releasably*** bonded to the casting ***surface*** and the inner ***surface*** is exposed. The exposed inner ***surface*** is bonded to the thermoformable backing layer. The casting ***surface*** is stripped from the paint film to expose weatherable outer ***surface*** of the paint film. Step (iv) is performed by ***applying*** pressure to the layers. Step (v) comprises thermoforming (1) into a three ***dimensional*** shape while (3) remains in place. Step (v) is performed by inserting (1) into a mold selected from compression molds or injection molds, and heating the mold to bond (1) to a ***substrate*** to form a composite shaped part. The method additionally comprises stripping (3) from (2) to expose the outer ***surface*** of (2). The method additionally comprises inserting the thermoformed (1) into an injection mold with (3) facing the mold ***surface***, injecting molten thermoplastic polymer into the mold, hardening the injected polymer to bond it to (1) and form a composite shaped material, and stripping (3) from the composite part to expose the decorative paint film.

Extension Abstract:

EXAMPLE - No relevant example given.

Derwent Class: A32; A95; E19

International Patent Class (Main): B29C-037/00

International Patent Class (Additional): B29C-045/14; B29C-051/16

89/34/75 (Item 22 from file: 350)

DIALOG(R)File 350:Derwent WPIX

013040078 **Image available**

WPI Acc No: 2000-211931/200019

Magnetic ***shield*** arrangement in color picture tube, includes ***mask*** frame to which end regions of magnetic ***shield*** is connected to perform heat transfer

Patent Assignee: TOSHIBA KK (TOKE)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 11339677	A	19991210	JP 98150045	A	19980529	200019	B

Priority Applications (No Type Date): JP 98150045 A 19980529

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 11339677	A		5	H01J-029/02	

Abstract (Basic): JP 11339677 A
NOVELTY - The magnetic ***shield*** (23) is arranged in back side of a shadow ***mask*** (13). The end regions of the ***shield*** is connected with a ***mask*** frame (8). The ***shield*** ***contacts*** with the ***mask*** frame ***surface*** when heat generation is maximum so that effective heat transfer is performed. DETAILED DESCRIPTION - Shadow ***mask*** (13) is arranged opposing the fluorescent screen (2) of the picture tube. The ***mask*** (4) ends are connected to the ***mask*** frame (8) which is clamped to the panel (1) through the ***elastic*** support (12).
USE - In color picture tube.
ADVANTAGE - Performs heat transfer effectively, thus thermal expansion of panel is supported and formation of land gap of electron beam opposing to the three color fluorescent layer is suppressed for long time. DESCRIPTION OF DRAWING(S) - The figure shows the shadow ***mask*** mounting structure. (1) Panel; (2) Fluorescent screen; (4) ***Mask***; (8) ***Mask*** frame; (12) ***Elastic*** support; (13) Shadow ***mask***; (23) Magnetic ***shield***.
Dwg.2/5
Derwent Class: V05
International Patent Class (Main): H01J-029/02

89/34/76 (Item 23 from file: 350)
DIALOG(R)File 350:Derwent WPIX

012855209 **Image available**
WPI Acc No: 2000-027041/200003
Resin finishing method for liquid injection recording head manufacture - involves effecting color change of resin material by laser irradiation to form ***positioning*** standard marker for subsequent assembly operation
Patent Assignee: CANON KK (CANO)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 11291359	A	19991026	JP 9894601	A	19980407	200003	B

Priority Applications (No Type Date): JP 9894601 A 19980407
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 11291359	A		7	B29C-071/00	

Abstract (Basic): JP 11291359 A
NOVELTY - The method involves radiating a laser light (103) of predetermined energy to the fixed ***position*** of a resin material (101). The light transmittance of the irradiated ***portion*** of the material is reduced. The resin changes color to serve as a ***positioning*** standard marker (104) for subsequent assembly operation.
DETAILED DESCRIPTION - The method is used to produce the locating

marker on a ***portion*** of a resin-made plate. The laser radiation with the ***coherent*** amount of predetermined energies is irradiated on the ***resin*** material through a ***photo*** ***mask*** material (102) in order to determine the irradiation ***position*** of the light. Excimer laser light of predetermined energy or the ***second*** higher harmonics of YAG laser light of predetermined energy is used for irradiation.

An INDEPENDENT CLAIM is also included for the manufacturing method of the liquid injection recording head. Laser light is irradiated on the fixed ***positions*** of an injection molded resin plate. The resin made plate is assembled on a substrate in order to manufacture the liquid injection recording head.

USE - For manufacture of liquid injection recording heads.

ADVANTAGE - The ***positioning*** standard marker produced on the resin made plate enables the easy assembling of the plate. Therefore, the productivity of the manufacture of the liquid injection recording heads is increased.

DESCRIPTION OF DRAWING - The figure shows the cross-***sectional*** block diagram depicting the resin finishing method. (101) ***Resin*** material; (102) ***Photo*** ***mask***; (103) Light; (104) Marker.

Dwg.2/2

Derwent Class: A32; A85; P75
International Patent Class (Main): B29C-071/00
International Patent Class (Additional): B41J-002/16

89/34/77 (Item 24 from file: 350)
DIALOG(R)File 350:Derwent WPIX

012851352 **Image available**
WPI Acc No: 2000-023184/200002
Material deposition method for forming multicolored pixelate array of organic electroluminescent material on substrate
Patent Assignee: HARVARD COLLEGE (HARD); MASSACHUSETTS INST TECHNOLOGY (MASI)
Inventor: ***DUFFY D C***; ***JACKMAN R J***; ***JENSEN K F***; VAETH K M; ***WHITESIDES G M***
Number of Countries: 022 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9954786	A1	19991028	WO 99US8623	A	19990420	200002	B
EP 1080394	A1	20010307	EP 99918698	A	19990420	200114	
			WO 99US8623	A	19990420		
JP 2002512124	W	20020423	WO 99US8623	A	19990420	200243	
			JP 2000545072	A	19990420		

Priority Applications (No Type Date): US 9863742 A 19980421
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9954786	A1	E	65	G03F-007/00	

Designated States (National): CA JP US
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
EP 1080394 A1 E G03F-007/00 Based on patent WO 9954786
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
JP 2002512124 W 79 B05D-001/32 Based on patent WO 9954786

Abstract (Basic): WO 9954786 A1
NOVELTY - A ***mask*** (30) shields predetermined portion of the surface of the substrate (72). An agent is applied through the channel of the ***mask*** to unshielded portion of the substrate while preventing application of the agent to the predetermined portion. The dimension of the channel is less than 1 mm.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for ***mask***.
USE - For forming multicolored pixelate array of organic electroluminescent material on substrate for flat panel display.
ADVANTAGE - Provides high resolution optical device that can be multicolor and can display electroluminescence. Forms seal against substrate surface in the absence of any clamping apparatus. Avoids use of solvent during fabrication and does not require encapsulation of pixels between formation steps.
DESCRIPTION OF DRAWING(S) - The figure shows the formation of array of different materials on surface using multiple ***masks***.
Mask (30)
Substrate (72)
pp; 65 DwgNo 7/18

Technology Focus:
TECHNOLOGY FOCUS - POLYMERS - The agent applied to the substrate to form pixelate array is selected from polyurethane, polyamide, polycarbonate, polyacetylene and polydiacetylene, polyphosphazene, polysiloxane, polyolefin, polyester, polyether, polyether ketones, polyalkylene oxides, polyethylene terephthalate, polymethyl methacrylate, polystyrene and derivatives and block, random, radial, linear, or teleblock copolymers, cross-linkable materials such as proteinaceous material and/or blends of the above, monomeric alkyl acrylate, alkyl methacrylate, alpha-methylstyrene, vinyl chloride and other halogen containing monomers, maleic anhydride, acrylic acid, acrylonitrile, specifically, methyl methacrylate, imide, carbonate, hexafluoroisopropyl methacrylate, acrylonitrile, bromophenyl acrylate or bromophenyl methacrylate.
Derwent Class: A89; B04; D16; G06; J04; L03; P42; P74; P84; U14
International Patent Class (Main): B05D-001/32; G03F-007/00
International Patent Class (Additional): B41C-001/14; G03F-001/00; G03F-001/08; G03F-007/12; H05B-033/10; H05B-033/14

89/34/78 (Item 25 from file: 350)
DIALOG(R)File 350:Derwent WPIX

012803852 **Image available**
WPI Acc No: 1999-610082/199952
Cosmetology training and practice system using make-up mannequin kit for application of make-up for actress, actor, fashion models
Patent Assignee: YAU P (YAUP-I)
Inventor: YAU P
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5971763	A	19991026	US 98109227	A	19980630	199952	B

Priority Applications (No Type Date): US 98109227 A 19980630
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5971763	A		30	G09B-019/00	

Abstract (Basic): US 5971763 A

NOVELTY - A soft skin mannequin head has a body with oval symmetrical facial configuration and with several flexible, ***elastic*** resilient and stretchable companion ***masks*** (14). ***Surface*** of make-up mannequin head and companion ***mask*** are capable of receiving and temporarily retaining cosmetic compositions at selected locations on the facial configuration.

DETAILED DESCRIPTION - The ***masks*** are formed as a shell open at ***one*** side and sized and shaped to ***conform*** to size and shape of the facial configuration portion of make-up mannequin head. The ***masks*** has facial configuration same as that of make-up mannequin. Each ***mask*** has a soft skin ***surface*** with skin tone and color representative of ***one*** of several human racial and ethnic origin. The ***mask*** is stretchable to be mounted on the facial portion of the body and ***elastically*** resilient to assume return secure engagement with the facial configuration of mannequin head.

USE - For use both in teaching and practice of both cosmetic make-up application of make-up for actress, actor, fashion models of both male and female and those individuals encompassing different racial characteristics, and permanent or tatto make-up application.

ADVANTAGE - After a short period of use and experience, the user is skilled quickly to enable the user to apply the eyebrow image creatively free hand, sufficiently. The acquired skills are useful in meeting the challenges encountered in the cosmetologists art and useful for cosmetic make-up application. Portability and lightweight of make-up mannequin head permits the cosmetic sales person to carry entire kit during demonstration thereby improving convenience. Enables the user to gain experience and to demonstrate to clients or others covering most human racial features, by provision of ***elastic*** resilient ***masks*** having skin tone and color representative of several human racial and ethnic origin. Nature of make-up mannequin and their companion ***masks*** can be economically beneficial in reducing the costs of operation of training institutions and the trainees and students attending them by eliminating the need for living models, for pooling of objects to be handled by trainees and students.

DESCRIPTION OF DRAWING(S) - The figure shows front perspective view of make-up mannequin kit.

Mask (14)

pp; 30 DwgNo 1/17

Derwent Class: P85

International Patent Class (Main): G09B-019/00

89/34/79 (Item 26 from file: 350)

DIALOG(R)File 350:Derwent WPIX

012550262

WPI Acc No: 1999-356368/199930

Producing a variety of self-assembled monolayer (SAM) patterns on planar and nonplanar surfaces of electronic, chemical, biological and optical devices

Patent Assignee: HARVARD COLLEGE (HARD)

Inventor: BERGGREN K K; BIEBUYCK H; GORMAN C B; ***JACKMAN R J***; KIM E; KUMAR A; MRKSICH M; PRENTISS M G; ***WHITESIDES G M***; WILBUR J L; XIA Y

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5900160	A	19990504	US 93131841	A	19931004	199930	B
			US 95397635	A	19950301		
			US 96676951	A	19960708		
			US 96677309	A	19960709		

Priority Applications (No Type Date): US 96676951 A 19960708; US 93131841 A 19931004; US 95397635 A 19950301; US 96677309 A 19960709

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5900160	A		28	B44C-001/22	CIP of application US 93131841
					CIP of application US 95397635
					Cont of application US 96676951
					CIP of patent US 5512131

Abstract (Basic): US 5900160 A

NOVELTY - A new method of etching an article (cylindrical fiber) comprises, contacting its surface with a stamp to transfer a self-assembled monolayer in a first pattern which is contiguous with an exposed portion of the surface in a second pattern, followed by contacting the article with an etchant that degrades it.

USE - The method is useful for patterning surfaces for electronic, chemical, biological, and optical devices. Specifically the method is useful for producing a variety of self-assembled monolayer (SAM) patterns on planar and nonplanar surfaces, the patterns having resolution in the submicron domain.

ADVANTAGE - The method is advantageous compared to the prior art of the irradiative lithographic method since it does not require sophisticated and expensive apparatus to produce a pattern on numerous different substrates. The method is less time consuming when compared

to the prior art and can be carried out on nonplanar and planar surfaces. The method can be used for patterning of biological species such as proteins, this is not possible with irradiative techniques that typically rely on resists and solvents which are toxic to many biological species.

pp; 28 DwgNo 0/16

Technology Focus:

TECHNOLOGY FOCUS - ELECTRONICS - Preferred Method: Prior to the contacting step, the surface of the stamp is coated with a molecular species forming a self-assembled monolayer. The surface of the stamp includes indentations and protrusions, the contacting step involves contacting the first nonplanar portion of the surface with the stamping surface. The contacting step comprises transferring the self assembled monlayer to the nonplanar portion of the material by rolling it over the stamping surface. The etchant is a first etchant and the method further comprises contacting the article with the second etchant. The self-assembled monolayer resists the first etchant, a protecting species is applied to the self-assembled monlayer. The protecting species is inert with respect to the first etchant.

METALLURGY - Preferred Method: The article is selected from silicon, titanium, zirconium, germanium, aluminum, copper or their oxides or glass. The article is selected from gold, silver, nickel, cadmium, zinc, palladium, platinum, iron, chromium or their alloys or alloys of copper.

Extension Abstract:

EXAMPLE - A silicon wafer covered with 0.2 micron-thick thermal silicon dioxide was cleaned and rinsed with deionized water. The surface of the water was patterned using a stamp with a self-assembled monlayer. Subsequent treatment of the patterned self-assembled monolayers containing vinyl-terminated regions with an aqueous solution of KMnO4 and KiO4 converted the olefins to carboxylic acids. A drop of a prepolymer of polymethyl methacrylate or polyurethane was placed on the patterned area. The prepolymer was compatible with the chemical functionality exposed by the surface silicon dioxide surface rather than the self-assembled monolayer. The prepolymer was cured under a mercury lamp to form protecting species at intervening regions covered by self-assembled monolayer. The surface was exposed to an etchant that was incompatible with the protecting species, but removed self-assembled monolayer and the underlying layer of silicon dioxide except at those protected regions which served as a ***mask*** in a subsequent etch of silicon. Anistropic etching of silicon was carried out in an aqueous solution which removed the protecting species, but not the underlying silicon dioxide ***mask***. Portions of the silicon not protected by ***mask*** were anistropically etched. The result was an etched surface of silicon.

Derwent Class: B04; D16; L01; L03; M14; P78

International Patent Class (Main): B44C-001/22

89/34/80 (Item 27 from file: 350)

DIALOG(R)File 350:Derwent WPIX

012139495 **Image available**
WPI Acc No: 1998-556407/199847
Gate electrode and sidewall spacer manufacture for FET's - uses stacked gate electrode structure having TEOS oxide and nitride hard ***mask*** which minimises ***polymer*** build-up during patterning
Patent Assignee: TAIWAN SEMICONDUCTOR MFG CO LTD (TASE-N)
Inventor: CHANG T; CHOU C; TSAO J
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5817562	A	19981006	US 97789212	A	19970124	199847	B

Priority Applications (No Type Date): US 97789212 A 19970124
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5817562	A		15	H01L-021/336	

Abstract (Basic): US 5817562 A
Gate electrode and sidewall spacer manufacture for field effect transistors (FETs) having self-aligned ***contacts*** (SAC) comprises: (a) providing a semiconductor substrate having device ***areas***; (b) forming a gate oxide on the device ***areas***; (c) depositing a conductively doped polysilicon layer on the device ***areas*** and on the substrate; (d) depositing a ***first*** insulating layer on the polysilicon layer; (e) depositing a hard mask layer on the ***first*** insulating layer; (f) patterning using a photoresist mask and anisotropic plasma etching the hard mask, the ***first*** insulating layer, and the ***first*** polysilicon layer, to form stacked gate electrode structures having vertical sidewalls over the device ***areas***; (g) forming by ion implantation lightly doped source/drain ***areas*** in the device ***areas*** adjacent to the gate electrode structures; (h) growing by thermal oxidation a polysilicon oxide layer on sidewalls of the polysilicon layer in the stacked gate electrode structures, and concurrently on the lightly doped source/drain ***areas***; (i) depositing a ***conformal*** ***first*** silicon nitride layer over the stacked gate electrode structures; (j) depositing a ***conformal*** ***second*** insulating layer on the ***first*** silicon nitride layer; (k) anisotropically plasma etching the ***second*** insulating layer and the ***first*** silicon nitride layer to form insulating sidewall spacers on the sidewalls of the stacked gate electrode structures, where the ***first*** silicon nitride layer remaining in the sidewall spacers is contiguous with the hard mask layer; (l) forming source/drain ***contact*** ***areas*** in the device ***areas*** adjacent to the insulating sidewall spacers by ion implantation; (m) depositing a blanket ***conformal*** ***second*** silicon nitride layer; (n) depositing a third insulating layer and annealing to form an essentially planar ***surface***; (o) photoresist masking and selectively wet etching in the third insulating layer to the ***second*** silicon nitride layer to form openings extending partially over the stacked gate electrode structures, thus forming self-aligned source/drain ***contact*** openings over the source/drain

contact ***areas***; (p) plasma etching the ***second*** silicon nitride layer in the source/drain ***contact*** openings to the polysilicon oxide layer formed on the source/drain ***contact*** ***areas***; (q) performing a pre-metal wet-etch dip to ***remove*** the polysilicon oxide, exposing the source/drain ***contact*** ***areas***; and (r) depositing and patterning a metal layer to form electrical ***contacts*** to the source/drain ***contact*** ***areas*** .

ADVANTAGE - The silicon nitride minimises polymer build up during plasma etching. The vertical sidewalls of the gate electrode structure allow sidewall spacers to be formed with improved shape, i.e L-shaped, which prevents erosion of the of the TEOS oxide which can lead to electrical shorts between the source/drain metal ***contact*** and the polysilicon gate electrodes.

Dwg.7/8

Derwent Class: L03; U11

International Patent Class (Main): H01L-021/336

89/34/81 (Item 28 from file: 350)

DIALOG(R)File 350:Derwent WPIX

011944116 **Image available**

WPI Acc No: 1998-361026/199831

Segmental face mask that is ***applied*** to the skin ***surface*** - in which segments of polymeric foam like material are adhesively attached to skin and decoration is ***applied*** to the mask

Patent Assignee: BILEK J G (BILE-I); FACE SAFE INC (FACE-N); KRUSE J L (KRUS-I); LEONARD A S (LEON-I)

Inventor: BILEK J G; KRUSE J L; LEONARD A S

Number of Countries: 075 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5765231	A	19980616	US 97812538	A	19970307	199831	B
WO 9838879	A1	19980911	WO 98US4843	A	19980306	199842	
AU 9867001	A	19980922	AU 9867001	A	19980306	199908	
CN 1249667	A	20000405	CN 98803108	A	19980306	200034	
EP 1014820	A1	20000705	EP 98909143	A	19980306	200035	
			WO 98US4843	A	19980306		
MX 9908061	A1	20000601	MX 998061	A	19990902	200133	
JP 2001515545	W	20010918	JP 98538927	A	19980306	200169	
			WO 98US4843	A	19980306		
US 38246	E	20030916	US 97812538	A	19970307	200362	
			US 99304948	A	19990504		
MX 209612	B	20020809	WO 98US4843	A	19980306	200367	
			MX 998061	A	19990902		

Priority Applications (No Type Date): US 97812538 A 19970307; US 99304948 A 19990504

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

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US 5765231     A      7 A42B-001/18
WO 9838879     A1 E
   Designated States (National): AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE
   DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK
   MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN
   Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GH GM GR IE
   IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
AU 9867001     A                        Based on patent WO 9838879
CN 1249667     A        A42B-001/18
EP 1014820     A1 E     A42B-001/18   Based on patent WO 9838879
   Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU
   MC NL PT SE
MX 9908061     A1       A42B-001/18
JP 2001515545 W      16 A41G-007/00   Based on patent WO 9838879
US 38246       E        A42B-001/18   Reissue of patent US 5765231
MX 209612      B        A42B-001/18
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Abstract (Basic): US 5765231 A

Mask has facial ***mask*** segments of resilient ***polymeric*** foam. Each segment ***conforms*** to part of the face. The segments attach to the skin by adhesive. The outer ***surface*** of the mask is decorated.

The foam is closed cell, with a closed cell ***surface***. It may be polyurethane, polyethylene, polypropylene, polyester, polyvinyl chloride or polystyrene. The adhesive is a pressure sensitive adhesive layer or a liquid adhesive suitable for use on skin. The decoration is a decal, or, a painted or inked design.

ADVANTAGE - It is easy to ***apply***, will cover as much or as little of the face as is desired, is easily ***removed***. It is non-irritating and not messy, does not interfere with natural vision, breathing or motion of the head or face. The segments are able to act independently of each other.

Dwg.1/4

Derwent Class: A83; P21
International Patent Class (Main): A41G-007/00; A42B-001/18
International Patent Class (Additional): A41G-007/00

89/34/82 (Item 29 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011601548 **Image available**
WPI Acc No: 1998-018676/199802
Formation method for small-scale coils and bands as ***photomasks*** on optical fibres - applying chemically active agent e.g. catalyst from applicator in pattern to exterior surface of article
Patent Assignee: HARVARD COLLEGE (HARD)
Inventor: ***JACKMAN R J***; ROGERS J A; ***WHITESIDES G M***
Number of Countries: 022 Number of Patents: 007
Patent Family:

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Patent No      Kind    Date     Applicat No     Kind    Date      Week
```

WO 9744692	A2	19971127	WO 97US8144	A	19970509	199802	B
AU 9739571	A	19971209	AU 9739571	A	19970509	199824	
EP 900398	A2	19990310	EP 97936931	A	19970509	199914	
			WO 97US8144	A	19970509		
US 5951881	A	19990914	US 96681235	A	19960722	199944	
JP 2000515477	W	20001121	JP 97542509	A	19970509	200064	
			WO 97US8144	A	19970509		
EP 900398	B1	20040218	EP 97936931	A	19970509	200413	
			WO 97US8144	A	19970509		
DE 69727667	E	20040325	DE 627667	A	19970509	200423	
			EP 97936931	A	19970509		
			WO 97US8144	A	19970509		

Priority Applications (No Type Date): US 96681235 A 19960722; US 9619065 P 19960509

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9744692	A2	E	41	G02B-006/16	

Designated States (National): AU CA JP
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

AU 9739571	A			G02B-006/16	Based on patent WO 9744692
EP 900398	A2	E		G02B-006/16	Based on patent WO 9744692

Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

US 5951881	A			H01L-022/027	
JP 2000515477	W		50	C03B-037/10	Based on patent WO 9744692
EP 900398	B1	E		G02B-006/16	Based on patent WO 9744692

Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DE 69727667	E			G02B-006/16	Based on patent EP 900398
					Based on patent WO 9744692

Abstract (Basic): WO 9744692 A

The method involves providing an article with two radiation-sensitive portions. A radiation-altering pattern is formed at a surface of the article. Radiation is directed at the first and second radiation-sensitive portions under conditions in which radiation-sensitive portions of the article can undergo a change in refractive index.

The method further involves allowing the radiation to be altered by the radiation-altering pattern so as to induce a change in the refractive index of the first radiation-sensitive portion while allowing the second radiation-sensitive portion to retain a refractive index distinguishable from the refractive index of the first portion.

USE - For making small-scale metallic structures such as micro-inductors, microtransformers and stents.

ADVANTAGE - Provides simple, relatively inexpensive technique for optically writing refractive index patterns in photosensitive articles. Is adaptable for wide variety of end products. Uses simple, readily available materials. Eliminates instability problems.

Dwg.1/9

Derwent Class: P34; P81; Q68; S03; V02; V04; V07

International Patent Class (Main): C03B-037/10; G02B-006/16; H01L-022/027
International Patent Class (Additional): A61M-029/02; B81B-001/00; B81C-005/00; C03C-015/00; G01R-033/32; G02B-006/10; H01F-041/04

89/34/83 (Item 30 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011470013 **Image available**
WPI Acc No: 1997-447920/199741
Preparation of an all-***polymeric*** phase shift ***mask*** for an optical disc - comprises spin coating a polymeric solution onto a rotating mask, drying the solution and peeling off the resulting polymer ***thin*** film.
Patent Assignee: HONG G H (HONG-I)
Inventor: HONG G H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5663016	A	19970902	US 94207878	A	19940308	199741	B
			US 95456663	A	19950602		

Priority Applications (No Type Date): US 94207878 A 19940308; US 95456663 A 19950602
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5663016	A		7	G03F-009/00	Div ex application US 94207878
					Div ex patent US 5468324

Abstract (Basic): US 5663016 A

An all-***polymeric*** phase shift ***mask*** having ***one*** or more layers of image-featured polymeric material is made by (i) preparing a liquid solution of polymers; (ii) spinning-on the solution onto a rotating mask; (iii) drying the solution on the rotating mask; and (iv) peeling-off a hardened and unsupported polymer ***thin*** film formed from a drying of the solution on the rotating mask.

Also claimed is a phase shift mask substitute for a chrome mask, the phase shift ***mask*** comprising: (i) a ***polymeric*** copy of an original master, and having ***one*** or more layers of image-featured polymer film with ***thickness*** differentials representing phase shift information obtained from said original master; and (ii) a pellicle type frame connected to provide edge support to the polymeric copy; where, phase variations more than intensity variations of light are depended upon to provide for image reconstruction; and where, chrome material is not included.

Also claimed is a phase shift assembly, comprising: a simple polymeric film with integrated circuit design features attached pellicle-style to a perimeter frame that provides for the optical flattening of the film by holding it taut, and where a phase shifting function is accommodated by the passing of light perpendicular to the film, and where a plurality of images in said film are represented by variations in film ***thickness*** and the images are rendered

transferable to a semiconductor wafer.
USE - For optical discs and more particularly to methods and apparatus for duplicating data recordings, such as compact discs, as are used for computer, audio and video recording. Also for the mass production of micro-miniaturised devices for such diverse fields as biomedical and micro-machinery.
ADVANTAGE - The method reproduces images from a master with high resolution and high fidelity to allow the manufacture of high capacity data storage media. The process requires no highly-specialized equipment to produce duplicates of optical data recording disks and semiconductor masks. It provides a duplication process that does not require heating, high pressure or high vacuum, to produce faithful duplicates of master data recordings; and uses natural solvent drying and ***conformal*** mapping without the need for heating.
Dwg.1/4
Derwent Class: A89; G06; L03; P73; P84; T03; U11; U12; W04
International Patent Class (Main): G03F-009/00

89/34/84 (Item 31 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010539313
WPI Acc No: 1996-036267/199604
Prepn of cloth for textile printing - by thermal reverse transfer from base layer of wood-free paper, resin layer for peeling, pattern layer contg pigment and polymer.
Patent Assignee: SANEI CHEM KK (SANE)
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 7305281	A	19951121	JP 94114397	A	19940430	199604	B
JP 3593361	B2	20041124	JP 94114397	A	19940430	200477	

Priority Applications (No Type Date): JP 94114397 A 19940430
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 7305281	A		16	D06P-005/00	
JP 3593361	B2		13	D06P-005/00	Previous Publ. patent JP 7305281

Abstract (Basic): JP 7305281 A
The cloth for textile printing comprises basic layer of a wood free paper, resin layer for peeling off provided onto ***surface*** of base layer to form base sheet, layer of desired pattern contg mixt of a pigment and polymer provided onto ***surface*** of sheet, white ***masking*** layer contg mixture of a white pigment and a polymer provided onto whole ***surface*** of pattern layer, ***shielding*** layer composed of polymer of a high crystallinity on whole ***surface*** of white ***masking*** layer, heat resistant ***elastic*** layer composed of a polymer resin provided onto whole ***surface*** of ***shielding*** layer, and an ***adhering*** layer of

a thermoplastic resin provided onto whole ***surface*** of ***elastic*** layer.

USE - The cloth for textile printing by thermal reverse transferring work.

ADVANTAGE - Cloth gives textile printing onto a cloth to form a pattern by easy and simple work of pressing with heating of the thermal reverse transferring. The printed cloth has high ***shielding*** power, friction resistance, durability washings, light resistance, heat-resistance and sublimation resistance in storage.

Dwg.0/20

Derwent Class: A97; F06; G05; P75
International Patent Class (Main): D06P-005/00
International Patent Class (Additional): B41M-005/38

89/34/85 (Item 32 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010533462 **Image available**
WPI Acc No: 1996-030416/199603

Mfg. ***elastomeric*** skin of at least two ***elastomeric*** materials having aesthetic visual parting line in between - using ***mask*** which is placed on upstanding edges of mould ***surface*** when spray moulding first material, ***mask*** being kept at distance from ***surface***

Patent Assignee: RECTICEL SA (RECT)
Inventor: DE WINTER H
Number of Countries: 052 Number of Patents: 018
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9532850	A1	19951207	WO 94BE37	A	19940601	199603	B
AU 9467179	A	19951221	AU 9467179	A	19940601	199612	
			WO 94BE37	A	19940601		
BR 9408580	A	19970506	BR 948580	A	19940601	199724	
			WO 94BE37	A	19940601		
TW 309555	A	19970701	TW 95104921	A	19950518	199741	
EP 804327	A1	19971105	EP 94915479	A	19940601	199749	
			WO 94BE37	A	19940601		
JP 10500366	W	19980113	WO 94BE37	A	19940601	199812	
			JP 95528528	A	19940601		
KR 97703232	A	19970703	WO 94BE37	A	19940601	199829	
			KR 96706758	A	19961128		
AU 700087	B	19981224	AU 9467179	A	19940601	199912	N
RU 2135357	C1	19990827	WO 94BE37	A	19940601	200033	
			RU 97100137	A	19940601		
US 6071619	A	20000606	WO 94BE37	A	19940601	200033	
			US 97750175	A	19970317		
CN 1149273	A	19970507	CN 94195121	A	19940601	200110	
			WO 94BE37	A	19940601		
EP 804327	B1	20010919	EP 94915479	A	19940601	200155	
			WO 94BE37	A	19940601		
DE 69428377	E	20011025	DE 94628377	A	19940601	200171	

			EP 94915479	A	19940601	
			WO 94BE37	A	19940601	
MX 200139	B	20001218	MX 952422	A	19950530	200220
ES 2163440	T3	20020201	EP 94915479	A	19940601	200225 N
CA 2191083	C	20020813	CA 2191083	A	19940601	200262
			WO 94BE37	A	19940601	
JP 3332382	B2	20021007	WO 94BE37	A	19940601	200273
			JP 95528528	A	19940601	
KR 441853	B	20041006	WO 94BE37	A	19940601	200512
			KR 96706758	A	19961128	

Priority Applications (No Type Date): WO 94BE37 A 19940601
Cited Patents: 05Jnl.Ref; EP 223278; EP 307005; EP 392186; EP 475004; JP 2032819; JP 3055219; JP 3124411; JP 58057914; JP 59159309
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9532850	A1	E	24	B29C-041/08	

Designated States (National): AT AU BB BG BR BY CA CH CN CZ DE DK ES FI GB GE HU JP KP KR KZ LK LU LV MG MN MW NL NO NZ PL PT RO RU SD SE SI SK UA US UZ VN
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL OA PT SE

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
AU 9467179	A			B29C-041/08	Based on patent WO 9532850
BR 9408580	A			B29C-041/08	Based on patent WO 9532850
TW 309555	A			D06N-003/00	
EP 804327	A1	E		B29C-041/08	Based on patent WO 9532850

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU NL PT SE

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 10500366	W		23	B29C-041/08	Based on patent WO 9532850
KR 97703232	A			B29C-041/08	Based on patent WO 9532850
AU 700087	B			B29C-041/08	Previous Publ. patent AU 9467179
					Based on patent WO 9532850
RU 2135357	C1			B29C-041/08	
US 6071619	A			B29C-039/12	Based on patent WO 9532850
CN 1149273	A			B29C-041/08	
EP 804327	B1	E		B29C-041/08	Based on patent WO 9532850

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU NL PT SE

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 69428377	E			B29C-041/08	Based on patent EP 804327
					Based on patent WO 9532850
MX 200139	B			B29C-037/00	
ES 2163440	T3			B29C-041/08	Based on patent EP 804327
CA 2191083	C	E		B29C-041/08	Based on patent WO 9532850
JP 3332382	B2		8	B29C-041/08	Previous Publ. patent JP 10500366
					Based on patent WO 9532850
KR 441853	B			B29C-041/08	Previous Publ. patent KR 97003232
					Based on patent WO 9532850

Abstract (Basic): WO 9532850 A
Elastomeric skin with ***surface*** portions of at least two ***elastomeric*** materials (7,9) is mfd. by spraying a layer of a first ***elastomeric*** material against a mould ***surface*** (2)

after ***shielding*** a portion (3) of the ***surface*** with a ***mask*** (4) having at least one edge (11) delimiting it, the edge being placed on top of at least one upstanding edge (13) on the ***surface*** and also sprayed with the ***elastomeric*** material. The ***mask*** is subsequently ***removed*** and the second ***elastomeric*** material is sprayed on to the now exposed portion, the upstanding edge of the mould ***surface*** delimiting the portion and the first ***elastomeric*** material being sprayed on to one side of that edge. Also claimed is a spray mould assembly for mfg. the skin with ***surface*** portions of at least two ***elastomers*** including the mould (1) defining the mould ***surface*** (2) and the ***mask***, the edge of the ***mask*** being placed on top of the upstanding edge delimiting the portion being ***shielded***.

USE - Method and appts. are used to achieve an aesthetic visual parting line between ***elastomeric*** materials, e.g. to produce dash-boards or other interior trim parts in the automotive industry in two or more different colours.

Dwg.1/13

Derwent Class: A32; A95; P42
International Patent Class (Main): B29C-037/00; B29C-039/12; B29C-041/08; D06N-003/00
International Patent Class (Additional): B05D-001/32; B29C-041/22; B29C-041/36

89/34/86 (Item 33 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010307924 **Image available**
WPI Acc No: 1995-209182/199528
Substrate metallisation method for smart power component - uses deposited metallic layer covered by ***resin*** ***mask*** which is selectively etched and ***second*** metallic layer is deposited on substrate both metallic layers being then etched to obtain metallisation zones
Patent Assignee: SGS THOMSON MICROELTRN SA (SGSA)
Inventor: JIMENEZ J
Number of Countries: 007 Number of Patents: 008
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
FR 2713397	A1	19950609	FR 9314744	A	19931203	199528	B
EP 658931	A1	19950621	EP 94410108	A	19941130	199529	
JP 7201850	A	19950804	JP 94297721	A	19941201	199540	
US 5543358	A	19960806	US 94345519	A	19941128	199637	
CN 1108003	A	19950906	CN 94119100	A	19941201	199732	
EP 658931	B1	19980218	EP 94410108	A	19941130	199811	
DE 69408567	E	19980326	DE 94608567	A	19941130	199818	
			EP 94410108	A	19941130		
CN 1051401	C	20000412	CN 94119100	A	19941201	200467	

Priority Applications (No Type Date): FR 9314744 A 19931203
Cited Patents: 02Jnl.Ref; EP 195716; GB 2168846; JP 62033425
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
FR 2713397	A1		13	H01L-021/768	
EP 658931	A1	F	6	H01L-021/768	
Designated States (Regional): DE FR GB IT					
JP 7201850	A		5	H01L-021/3205	
US 5543358	A		6	H01L-021/28	
CN 1108003	A			H01L-021/28	
EP 658931	B1	F	7	H01L-021/768	
Designated States (Regional): DE FR GB IT					
DE 69408567	E			H01L-021/768	Based on patent EP 658931
CN 1051401	C			H01L-021/768	

Abstract (Basic): FR 2713397 A

A method for obtaining ***thin*** metallic layers on a substrate (1) includes the deposition of a ***first*** ***thin*** layer (2) which is then covered by a ***mask*** (11) and a ***resin*** layer (13). This is followed by selective etching of the mask so that only the future metallisation zones (11-1,11-2) are masked.

A ***second*** metallic layer (7) is then deposited on the substrate covered by a resin layer (14). Selective etching is then ***applied*** to both metallic layers to obtain ***thin*** metallisation zones (M1- 1,M1-2) and ***thick*** ***areas*** (M1-10,M2-10).

ADVANTAGE - Reduces number of photolithography operations without using complex procedures. Enables uniform coverage of metallic layers.

2A,B,C,D/2

Abstract (Equivalent): EP 658931 B

A method for obtaining ***thin*** metallic layers on a substrate (1) includes the deposition of a ***first*** ***thin*** layer (2) which is then covered by a ***mask*** (11) and a ***resin*** layer (13). This is followed by selective etching of the mask so that only the future metallisation zones (11-1,11-2) are masked.

A ***second*** metallic layer (7) is then deposited on the substrate covered by a resin layer (14). Selective etching is then ***applied*** to both metallic layers to obtain ***thin*** metallisation zones (M1- 1,M1-2) and ***thick*** ***areas*** (M1-10,M2-10).

ADVANTAGE - Reduces number of photolithography operations without using complex procedures. Enables uniform coverage of metallic layers.

Dwg.1a/2d

Abstract (Equivalent): US 5543358 A

A method for fabricating a semiconductor chip, the method comprising the steps of:

depositing a ***first*** metal layer on a substrate;

masking the ***first*** metal layer with a masking layer to define a ***first*** metal region;

depositing a ***second*** metal layer over the masking layer and the ***first*** metal layer;

coating the ***second*** metal layer with a resist layer to define a ***second*** metal region; and

etching the ***first*** metal layer and the ***second*** metal layer to form the ***first*** metal region and the ***second*** metal

region that is ***thicker*** than the ***first*** metal region, the ***second*** metal layer having a ***second*** ***width*** and the ***first*** metal layer having a ***first*** ***width*** in the ***second*** metal region, the ***second*** ***width*** substantially ***conforming*** to the ***first*** ***width***.

Dwg.2c,d/2

Derwent Class: U11

International Patent Class (Main): H01L-021/28; H01L-021/3205; H01L-021/768

International Patent Class (Additional): H01L-021/32; H01L-023/52

89/34/87 (Item 34 from file: 350)

DIALOG(R)File 350:Derwent WPIX

009351339 **Image available**

WPI Acc No: 1993-044813/199305

Masking irregular contour vehicle part during painting - using shape retaining laminate of aluminium@ foil and resin film

Patent Assignee: TOYOTA JIDOSHA KK (TOYT)

Inventor: KAI T; KUSUNOKI G; WATANABE I

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5178913	A	19930112	US 88292043	A	19881230	199305	B
			US 90562660	A	19900803		

Priority Applications (No Type Date): JP 88U2970 U 19880113

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5178913	A		5	B05C-011/00	Cont of application US 88292043

Abstract (Basic): US 5178913 A

A part is protected during painting and baking using a mask of Al foil laminated with a ***resin*** film. The ***mask*** (14) is placed with the foil against the protected ***surface*** and is wound around the part (16) while deforming the sheet into intimate relation with the ***surface***. Paint is ***applied*** to both the vehicle part and the film of the mask and is baked on both part and mask, pref. at least at 140 deg.C for a set time.

The mask is finally ***removed*** with the paint peeling from the film either during baking or ***removal***. The foil is pref. 30 ***microns*** and the film is of PVC, polyester or polyamide and is 3-7 ***microns*** ***thick***. The mask is pref. formed by cutting a selected ***length*** of laminate from a roll.

USE/ADVANTAGE - E.g. for masking the frame of a rear door assembly when forming a ***two***-tone finish or a black finish on a door sash, can easily be ***conformed*** to a ***surface***, retains the shape, and effectively resists separation of paint.

A

Dwg.3/8

Derwent Class: A14; A97; P42

International Patent Class (Main): B05C-011/00

89/34/88 (Item 35 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009089607 **Image available**
WPI Acc No: 1992-217029/199226
Prodn. of cyclodextrin deriv. used as filling for chromatographic separators - by reacting cyclodextrin with carboxylic acid to ***replace*** prim. hydroxy gp.
Patent Assignee: TOPPAN PRINTING CO LTD (TOPP)
Inventor: YOSHINAGA M
Number of Countries: 018 Number of Patents: 008
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9209637	A1	19920611	WO 91JP1011	A	19910729	199226	B
EP 513358	A1	19921119	EP 91913121	A	19910729	199247	
			WO 91JP1011	A	19910729		
JP 5001103	A	19930108	JP 91214503	A	19910731	199306	
JP 5025203	A	19930202	JP 91216035	A	19910801	199310	
EP 513358	A4	19930915	EP 91913121	A	19910000	199527	
US 5608015	A	19970304	WO 91JP1011	A	19910729	199715	
			US 92842156	A	19920323		
			US 94237725	A	19940504		
EP 513358	B1	19971001	EP 91913121	A	19910729	199744	
			WO 91JP1011	A	19910729		
DE 69127810	E	19971106	DE 627810	A	19910729	199750	
			EP 91913121	A	19910729		
			WO 91JP1011	A	19910729		

Priority Applications (No Type Date): JP 90335532 A 19901130; JP 90335531 A 19901130
Cited Patents: JP 54061289; JP 55013786; JP 55075402; JP 57057701; JP 59227906; JP 61129566; JP 63314201; US 4274985; US 4357468; US 4169079; 3.Jnl.Ref; EP 483380; EP 485614; JP 55013796; WO 9002141
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9209637	A1	E	59	C08B-037/16	
Designated States (National): CA KR US					
Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LU NL SE					
EP 513358	A1	E	37		Based on patent WO 9209637
Designated States (Regional): BE CH DE FR GB IT LI NL					
JP 5001103	A		9		
JP 5025203	A		22	C08B-037/16	
US 5608015	A		25	C08B-037/16	Div ex application WO 91JP1011
					Div ex application US 92842156
EP 513358	B1	E	38	C08B-037/16	Based on patent WO 9209637
Designated States (Regional): BE CH DE FR GB IT LI NL					
DE 69127810	E			C08B-037/16	Based on patent EP 513358
					Based on patent WO 9209637

Abstract (Basic): WO 9209637 A
Cyclodextrin deriv is produced by reacting cyclodextrin with a carboxylic acid halide cpd. to introduce a protecting gp. into the cyclodextrin by ***replacing*** only ***one*** prim. OH gp. Cyclodextrin deriv is pref. produced by reacting cyclodextrin with cpds or formulae (I) - (V) to introduce a protecting gp. In the formulae X is Cl, Br, or I; R and R' are each isoC3H7, phenyl or gp (vi). Polymer contg. immobilised cyclodextrin deriv is produced by reacting an alpha, beta unsatd and or a halogenated deriv with a cyclodextrin deriv so as to fix ***one*** unit of cyclodextrin or its deriv to ***one*** acid monomer.

USE/ADVANTAGE - Polymer contg immobilised cyclodextrin has a high reactivity in polymer reactions and is a useful material for column fillings for chromatographic sepn, for catalysts, food flavour ***maskers*** etc., ***Polymer*** can also be used for dissolving insol substances.

Dwg. 0/0

Abstract (Equivalent): EP 513358 B
Cyclodextrin deriv is produced by reacting cyclodextrin with a carboxylic acid halide cpd. to introduce a protecting gp. into the cyclodextrin by ***replacing*** only ***one*** prim. OH gp. Cyclodextrin deriv is pref. produced by reacting cyclodextrin with cpds or formulae (I) - (IV) and NCCH2CH2OP(RNR')X (V) to introduce a protecting gp. In the formulae X is Cl, Br, or I; R and R' are each isoC3H7, phenyl or gp (vi). Polymer contg. immobilised cyclodextrin deriv is produced by reacting an alpha, beta unsatd and or a halogenated deriv with a cyclodextrin deriv so as to fix ***one*** unit of cyclodextrin or its deriv to ***one*** acid monomer.

USE/ADVANTAGE - Polymer contg immobilised cyclodextrin has a high reactivity in polymer reactions and is a useful material for column fillings for chromatographic sepn, for catalysts, food flavour ***maskers*** etc., ***Polymer*** can also be used for dissolving insol substances.

Dwg.0/0

Abstract (Equivalent): US 5608015 A
A process for producing a cyclodextrin-immobilized polymer, comprising (i) reacting cyclodextrin (CD) with a protecting ***agent*** having a protective group, the protecting ***agent*** being a member selected from the gp. consisting of a carboxylic acid halide, an acid anhydride, and a compound ***conforming*** to ***one*** of the formulae below: (I) - (V) where X is Cl, Br or I; and R and R each represents an isopropyl group, a phenyl gp. or a benzyl group, thereby producing a protected cyclodextrin derivative having a single protected prim. hydroxyl group; (ii) ***contacting*** the protected cyclodextrin derivative with a blocking ***agent*** having a blocking group, the blocking gp. being selected from the gp. consisting of (VI), (VII) and (VIII) thereby producing a blocked and protected cyclodextrin derivative having a single protected prim. hydroxyl gp. and having all of its remaining prim. hydroxyl gps. and all of its sec. hydroxyl gps. blocked by the blocking group; (iii) ***removing*** the protective gp. from the blocked and protected cyclodextrin derivative to produce a

blocked cyclodextrin derivative having a single, unprotected prim. hydroxyl gp. and having all of its remaining prim. hydroxyl gps. and all of its sec. hydroxyl gps. blocked by the blocking group; (iv) reacting the single, unprotected prim. hydroxyl gp. of the blocked cyclodextrin derivative with a polymerisable monomer selected from the gp. consisting of an acid halide monomer of an alpha , beta -unsaturated acid, a derivative of it, an alpha , beta -unsaturated acid monomer having a terminal isocyanate group, and a derivative of it, to produce a cyclodextrin monomer having all of its remaining prim. hydroxyl gps. and all of its sec. hydroxyl gps. blocked by the blocking group; (v) copolymerizing the cyclodextrin monomer with a ***second*** polymerisable monomer, thereby producing a cyclodextrin-immobilized polymer.

Dwg.0/0

Derwent Class: A14; A89; A97; D13; E11; E14; J04
International Patent Class (Main): C08B-037/16
International Patent Class (Additional): C08B-037/00; C08F-020/14

89/34/89 (Item 36 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008693438 **Image available**
WPI Acc No: 1991-197458/199127
Mfr. of base for photoreceptor - comprises dipping cylindrical metallic base into cell filled with electrolyte to form electrode film
Patent Assignee: SHARP KK (SHAF)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 3122654	A	19910524	JP 89261141	A	19891005	199127	B

Priority Applications (No Type Date): JP 89261141 A 19891005

Abstract (Basic): JP 3122654 A

The cylindrical metallic base is dipped into the cell filling with the electrolyte, as the electrode, to form the oxide film onto the ***surface*** of the cylindrical metallic base. At least the pt. of the inner wall of the cylindrical metallic base comprises the ***removable*** ***elastic*** ***masking*** material for ***shielding*** the electrolyte.

Pref. the ***masking*** material is the solvent-proof and heat-proof material such as the F rubber. The ***masking*** material has the ***contact*** portion of the size same as the inner dia. of the cylindrical metallic base, and the attachment of the electrolyte can be prevented on the area where the ***contact*** portion is kept into ***contact*** with the inner wall of the metallic base.

USE/ADVANTAGE - The insulating layer (oxide layer) is not formed on the area for earthing, so that the cutting of the insulating layer becomes unnecessary, so that the process and the time for the same, can be reduced. The scratching of the photoreceptor caused by the cutted

powder, can be prevented. (4pp Dwg.No.1,2/8
Derwent Class: A89; G08; M11; P84; S06
International Patent Class (Additional): G03G-005/14

89/34/90 (Item 37 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008366149 **Image available**
WPI Acc No: 1990-253150/199033
Device and process for hygienic mouth to mouth artificial respiration - comprises two tubes extending in sealing relation through mouth ***mask*** formed from flexible ***elastomeric*** material
Patent Assignee: ROBERTSON G N (ROBE-I)
Inventor: ALLEN T F; ROBERTSON G N
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4944291	A	19900731	US 88239115	A	19880831	199033	B

Priority Applications (No Type Date): US 88239115 A 19880831

Abstract (Basic): US 4944291 A

The device includes a mouth mask formed from a flexible elastomeric material configured for ***conforming*** sealing engagement over a patient's mouth. First and second tubes formed from a clear plastic material extend in sealing relation through the mouth mask. A check valve and mouthpiece are connected to the first tube for allowing an attendant to blow air into a patient's mouth, while preventing exhaled air from a patient from returning through the first tube to an attendant.

An elbow and an attached flexible exhaust conduit are connected to the second tube for directing air exhaled from a patient away from an attendant. The flexible exhaust conduit may be pinched by an attendant to regulate the exhalation rate of a patient. An elongated flexible tether, formed integrally with the mouth mask, has a slotted portion through which a nose clip is inserted. The nose clip is formed from a hard elastomeric material for use in closing a patient's nose. The entire device is formed from inexpensive materials and is designed for disposal after one time use.

USE - For use by an attendant performing hygienic mouth to mouth artificial respiration on a patient. (8pp Dwg.No.1/9
Derwent Class: P34
International Patent Class (Additional): A61M-016/00

89/34/91 (Item 38 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008300137 **Image available**

WPI Acc No: 1990-187138/199025
Strengthening resin-fibre panel - using box ***section*** reinforcement members in which same resin-fibre composite becomes integral part of panel
Patent Assignee: SHELL INT RES MIJ BV (SHEL)
Inventor: GUITON J D L
Number of Countries: 014 Number of Patents: 011
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 373729	A	19900620	EP 89203206	A	19891214	199025	B
CA 2005434	A	19900614				199035	
JP 2219650	A	19900903	JP 89324862	A	19891214	199041	
US 5069737	A	19911203	US 89449180	A	19891213	199151	
EP 373729	A3	19920902	EP 89203206	A	19891214	199338	
EP 373729	B1	19950809	EP 89203206	A	19891214	199536	
DE 68923770	E	19950914	DE 623770	A	19891214	199542	
			EP 89203206	A	19891214		
ES 2075037	T3	19951001	EP 89203206	A	19891214	199545	
NO 180352	B	19961223	NO 895010	A	19891213	199706	
JP 2846906	B2	19990113	JP 89324862	A	19891214	199907	
KR 156550	B1	19981116	KR 8918610	A	19891213	200030	

Priority Applications (No Type Date): GB 8829198 A 19881214
Cited Patents: NoSR.Pub; GB 1008060; GB 1382069; GB 2040790; GB 748395
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 373729	A		9		
Designated States (Regional): BE DE ES FR GB GR IT NL SE					
EP 373729	A3		9		
EP 373729	B1	E	10	B29D-009/00	
Designated States (Regional): BE DE ES FR GB GR IT NL SE					
DE 68923770	E			B29D-009/00	Based on patent EP 373729
ES 2075037	T3			B29D-009/00	Based on patent EP 373729
NO 180352	B			F16S-001/10	Previous Publ. patent NO 8905010
JP 2846906	B2		8	B32B-031/12	Previous Publ. patent JP 2219650
KR 156550	B1			B32B-031/12	

Abstract (Basic): EP 373729 A
Panel (40) is strengthened using elongate reinforcement member (42) having ***surface*** ***portion*** (44) ***conforming*** to part of the panel ***surface***. The ***surface*** ***portion*** of the member is ***applied*** and laminated to the panel ***surface*** and a layer material is ***applied*** and laminated to the panel and member, the layer extending over ***surfaces*** of the reinforcement member still exposed and at least over regions of the panel laterally to each side of the member.

USE/ADVANTAGE - Method is used to form a structure having improved strength and more uniform stiffness, the structures esp. being made from resin/fibre composites. The strengthened panels are resistant to abrupt deflection and delamination. (9pp Dwg.No.1/6

Abstract (Equivalent): EP 373729 B
A method of strengthening a panel (50) by use of an elongate

reinforcement member having a ***surface*** ***portion*** ***conforming*** to part of the panel ***surface*** (50) comprising the steps of: a) ***applying*** and laminating the ***surface*** ***portion*** of the member to the panel ***surface***, b) ***applying*** and laminating a layer material to the panel and member, the layer extending over ***surfaces*** of the reinforcement member left exposed by step a) and at least over regions of the panel laterally to each side of the member; characterised in that the said member is formed directly on the said panel by the following steps: laying up the panel (50); marking the ***positions*** of the edges of a former on the panel (50); ***positioning*** a mat or fabric layer (452,54,86) of fibre material over the marked ***areas*** of the panel, ***applying*** resin thereto, thereby forming a laminate, the said mat or fabric layer being larger than the floor ***area*** of the former; compacting the laminate; placing a former on the resined ***area*** of fibre and folding the mat or fabric layer of fibre to lie along the sides and part of the top of the former ***applying*** resin thereto and compacting the laminate; laying up a fibre tape (70) on top of the former and laying up a ''top-hat'' layer of fibre (72).

Dwg.7/8

Abstract (Equivalent): US 5069737 A

Double skin construct panel is formed by marking the locations of a ***first*** set of core formers on the face of a laminate, ***positioning*** masking strip on the locations, layering up layers of fibre/resin with the edges overlapping the masking strip, and securing the core formers above the fibre/***resin***. The ***masking*** strips are raised to press the fibre/resin against the sides of the core formers and then ***removed***. The process is repated to ***apply*** the upper laminate. ADVANTAGE - Crack-free hulls with additional reinforcements.

(7pp

Derwent Class: A32; P72; P73; Q24; Q44; Q68

International Patent Class (Main): B29D-009/00; B32B-031/12; F16S-001/10

International Patent Class (Additional): B29C-047/00; B29C-065/02; B31F-001/20; B32B-003/26; B32B-027/04; B32B-035/00; B63B-005/24; E04C-002/00

89/34/92 (Item 39 from file: 350)

DIALOG(R)File 350:Derwent WPIX

007833077

WPI Acc No: 1989-098189/198913

Strippable coatings for printed circuit boards - based on polyether-polyamide block copolymer and ***applied*** using portable extruder

Patent Assignee: ANONYMOUS (ANON)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RD 298013	A	19890210				198913	B

Priority Applications (No Type Date): RD 89298013 A 19890120

Abstract (Basic): RD 298013 A

A novel use of a polyether-polyamide block ***copolymer*** is as a ***masking*** material on printed circuit boards. This material was ***applied*** with a portable extruder at 190 deg. C. The material is resistant to the solvents in the ***conformal*** coating, and is ***removed*** without leaving remnants. A material masks parts of printed circuit boards, protecting specific ***sections*** of the boards from a xylene-rich, ***conformal*** coating ***applied*** within minutes after masking. The masking material has good initial adhesion, is resistant to solvents in the ***conformal*** coating, and is totally ***removable***.

Derwent Class: A23; A25; A85; L03; V04

International Patent Class (Additional): B29C-000/01

89/34/93 (Item 40 from file: 350)

DIALOG(R)File 350:Derwent WPIX

007500532

WPI Acc No: 1988-134465/198820

Masking exposure curing liq. photosensitive resin for printing plate - uses roughened ***surface***(s) between substrate and masking film to prevent air-pocket entrapment leading to resin film ***thickness*** non-uniformity

Patent Assignee: ASAHI KASEI KOGYO KK (ASAH)

Inventor: KOJIMA T; YAMASHITA T

Number of Countries: 013 Number of Patents: 011

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 267600	A	19880518	EP 87116668	A	19871111	198820	B
AU 8781112	A	19880519				198828	
NO 8704706	A	19880606				198828	
ZA 8708480	A	19880509	ZA 878480	A	19871111	198834	
JP 63121849	A	19880525				199026	
US 5213949	A	19930525	US 87119781	A	19871112	199322	
			US 89363404	A	19890602		
			US 91764959	A	19910925		
NO 174880	B	19940418	NO 874706	A	19871111	199419	
EP 267600	B1	19950125	EP 87116668	A	19871111	199508	
DE 3751023	G	19950309	DE 3751023	A	19871111	199515	
			EP 87116668	A	19871111		
ES 2066757	T3	19950316	EP 87116668	A	19871111	199517	
JP 2515521	B2	19960710	JP 86267715	A	19861112	199632	

Priority Applications (No Type Date): JP 86267715 A 19861112

Cited Patents: 3.Jnl.Ref; A3...9014; DE 2932086; EP 169294; EP 66036; JP 59146056; JP 61172148; JP 61172149; No-SR.Pub; US 3507593

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 267600	A	E	20		
Designated States (Regional): BE DE ES FR GB IT NL SE					
US 5213949	A		15	G03F-007/26	Cont of application US 87119781 Cont of application US 89363404
NO 174880	B			B41C-001/10	Previous Publ. patent NO 8704706
EP 267600	B1	E	2	G03F-007/20	
Designated States (Regional): BE DE ES FR GB IT NL SE					
DE 3751023	G			G03F-007/20	Based on patent EP 267600
ES 2066757	T3			G03F-007/20	Based on patent EP 267600
JP 2515521	B2		7	G03F-007/00	Previous Publ. patent JP 63121849

Abstract (Basic): EP 267600 A

In a method for selectively curing a liq. photosensitive ***resin*** by ***masking*** exposure which comprises (1) superposing on a lower rigid plate transparent to active rays, in the following order: an image bearing transparency opt. with a transparent protective film on the side remote from the plate; a liq. photosensitive resin layer; a substrate transparent to active rays; a masking film with a transmitting pattern having a contour corresp. to and slightly larger than that of the image bearing transparency; and an upper rigid plate transparent to active rays; the transmitting patterns being in register; and (2) exposing the resin to active rays through the pattern of the masking film to cure the resin selectively; the improvement is that rough ***contact*** is provided between the masking film and substrate by means of (a) a transparent film having at least ***one*** ***surface*** roughened used as the substrate with the roughened ***surface*** facing the lower ***surface*** of the masking film; or (b) a film having at least ***one*** ***surface*** roughened and having a transmitting pattern and used as the masking film, the roughened ***surface*** facing the upper ***surface*** of the substrate; or (c) a transparent film having both ***surfaces*** roughened placed between the substrate and masking film.

USE/ADVANTAGE - Used for prodn. of esp. flexographic printing plates for printing paper containers, corrugated board, film, etc. The ***surface*** roughness prevents local interfacial cohesion between the masking film and substrate which traps air pockets which protrude into the liq. resin layer and lead to a non-uniformity of the ***thickness*** of the cured resin layer.

(Dwg.0/10

Abstract (Equivalent): EP 267600 B

A method for selectively curing a liquid photosensitive ***resin*** by ***masking*** exposure which comprises: (1) superposing on a lower rigid plate (1) transparent to actinic rays in the following order, an image bearing transparency (2) having a transmitting pattern (31) or an image bearing transparency (2) having a transmitting pattern (31) which transparency (2) has a transparent protective film (3) disposed on the side remote from said lower rigid plate (1), a liquid photosensitive resin (4) in the form of a layer, a substrate (5) transparent to actinic rays, a masking film (6) with a transmitting pattern (41) having a contour corresponding to and being slightly larger than that of the transmitting pattern (31) of said image bearing transparency

(2), and an upper rigid plate (17) transparent to actinic rays, said masking film (6) being disposed so that the ***positions*** of the transmitting patterns (31) of said image bearing transparency (2) and said masking film (6) are superposed and aligned to each other; and (2) exposing said resin layer (4) to actinic rays through the transmitting pattern (41) of said masking film (6), thereby selectively curing the resin layer (4) in ***conformity*** with the transmitting pattern (41) of said masking film (6), the method being characterised in that rough ***contact*** is provided between said masking film (6) and said substrate (5) by employing a film selected from the group consisting of: (a) a film having at least ***one*** ***surface*** roughened and being transparent to actinic rays, said film being employed as said substrate (5) and disposed so that the roughened ***surface*** of said substrate (5) faces the lower ***surface*** of said masking film (6), (b) a film having at least ***one*** ***surface*** roughened and having a transmitting pattern which has a contour corresponding to and slightly larger than that of the transmitting pattern (31) of said image bearing transparency (2), said film being employed as the masking film (6) and disposed so that the roughened ***surface*** of the masking film (6) faces the upper ***surface*** of said substrate (5), and (c) a film having both ***surfaces*** roughened and being transparent to actinic rays, said film being superposed on said substrate (5) prior to the superposition of said masking film (6) and subsequent to the superposition of said substrate (5) so that said film having both the ***surfaces*** roughened is sandwiched between said masking film (6) and said substrate (5).

(Dwg.6a/10

Abstract (Equivalent): US 5213949 A

Flexographic printing plate mfr. comprises superposing an image bearing transparency, a liq. photosensitive resin layer, a substrate transparent to active rays, a masking film and an upper rigid plate transparent to active rays on a lower rigid plate transparent to active rays; exposing resin layer to active rays through transmission pattern of ***mask*** to selectively cure ***resin***; exposing resin layer to active rays through transmitting pattern of image bearing transparency to selectively cure resin; washing exposed resin layer to wash out uncured resin ***portion*** to obtain a plate with shelf and relief ***portions***; and washing and drying plate.

A rough ***contact*** is supplied between masking film and substrate using a film having a rough ***surface*** which is transparent to active beams or a film having rough ***surface***(s) and having a transmission pattern or a film has both ***surfaces*** roughened and is transparent to active rays.

USE/ADVANTAGE - The plate has highly uniform ***thickness***. Plate may be used for printing paper container, corrugated board, etc.

Dwg.7/10

Derwent Class: A35; A97; G07; P74; P75; P84

International Patent Class (Main): B41C-001/10; G03F-007/00; G03F-007/20; G03F-007/26

International Patent Class (Additional): B41M-000/00; B41N-000/00; G03F-001/00

89/34/94 (Item 41 from file: 350)
DIALOG(R)File 350:Derwent WPIX

004259873
WPI Acc No: 1985-086751/198514
Forming solder mask coating on printed wiring board - using ***two*** layer composite polymer layers and exposing to radiation via e.g. photo-transparency
Patent Assignee: SULLIVAN D F (SULL-I)
Inventor: SULLIVAN D F
Number of Countries: 001 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4506004	A	19850319	US 82364309	A	19820401	198514	B
US 4647524	A	19870303	US 85736380	A	19850619	198711	
			US 86838968	A	19860312		
US 32430	E	19870602				198724	

Priority Applications (No Type Date): US 82364309 A 19820401; US 84600084 A 19840413; US 84650109 A 19840913; US 84664431 A 19841024; US 84672500 A 19841119; US 85736380 A 19850619
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4506004	A		9		

Abstract (Basic): US 4506004 A
A solder mask coating is formed on a printed wiring board (PWB) by: (a) coating the PWB rough contour ***surface*** (having a layer of circuit trace pattern extending from the insulating ***surface*** of the board) with a layer of liquid polymer adhesive of predetermined ***thickness*** overlying the electrical conductors and insulating ***surface*** displacing air from the board ***surface***; (b) depositing a layer (I) of solder ***mask*** ***polymer*** of predetermined ***thickness*** on a carrier ***surface***; (c) transferring layer (I) as an outer ***surface*** layer onto the PWB coated with liquid photopolymer to ***conform*** with the wiring board ***surface*** configuration and forming ***two*** laminated layers of polymer of differing characteristics on the board; (d) exposing both layers to radiation through a pattern to effect hardening in selected ***areas*** to form the solder mask and unexposed ***areas*** to which solder will adhere; and (e) washing out the unhardened polymer layers and curing the remaining composite coating to form the solder mask.

ADVANTAGE - A dry film pre-patterned solder mask may be laminated to a highly irregular ***surfaced*** PWB without using a vacuum laminator. The time to process the solder mask is reduced by eliminating the need to laminate at elevated temps. The solder mask coating is not ***thinned*** out over the metal conductors.

1/3
Derwent Class: A85; A89; G06; L03; P83; V04
International Patent Class (Additional): G03C-005/00

89/34/95 (Item 42 from file: 350)
DIALOG(R)File 350:Derwent WPIX

004140092
WPI Acc No: 1984-285632/198446
Mask prodn. for ceramic filter - involves forming film having UV-permeable ***areas*** corresp. to through-***holes*** of ceramic filter in which no sealant is poured
Patent Assignee: NGK INSULATORS LTD (NIGA)
Number of Countries: 002 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 59177114	A	19841006	JP 8348946	A	19830325	198446	B
US 4563414	A	19860107	US 83543119	A	19831018	198605	
JP 91053005	B	19910813	JP 8348946	A	19830325	199136	

Priority Applications (No Type Date): JP 8348946 A 19830325
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 59177114	A		5		

Abstract (Basic): JP 59177114 A
UV-permeable film is designed so that ***portions*** which correspond to through ***holes***, into which a sealing material is poured at the open end of a porous ceramic honeycomb structural body, are designed to permit no UV-permeation and ***portions*** which correspond to through ***holes***, into which no sealing material is poured, are designed to permit UV permeation. Then, the film is placed on a UV-curable resin, followed by UV-irradiation. Finally, uncured resin ***portions*** are ***removed***.
USE/ADVANTAGE - Mask for the ceramic filter can be made in good ***conformity*** with the ceramic honeycomb structural body.
0/11
Abstract (Equivalent): US 4563414 A
A mask for use in producing a ceramic filter from a porous ceramic honeycomb is made by placing on UV-curable resin a film with UV-opaque and transparent regions corresponding to honeycomb ***holes***, irradiating through the film with UV light, and ***removing*** all uncured parts of the ***resin*** to leave a ***mask*** for selectively filling honeycomb ***holes*** with sealant.
Pref. a TV camera monitors honeycomb ***hole*** ***positions*** and outputs to a microcomputer which formulates an arrangement drawing by outputting to an XY plotter, and the arrangement is photographed to provide the required film. Separate films may be used to carry patterns of ***holes*** which are and are not to receive sealant.
ADVANTAGE - Eliminates the need for use of a metal mould. (8pp
Derwent Class: A88; J01; P73; P83
International Patent Class (Additional): B01D-039/20; B01D-046/00; B32B-003/12; G03C-005/00

89/34/96 (Item 43 from file: 350)
DIALOG(R)File 350:Derwent WPIX

003543087
WPI Acc No: 1982-91080E/198243
Pattern colouring of aluminium or its alloy - by anodic oxidn., immersing in metal salt soln., ***applying*** clear ***resin*** as ***mask***., decolouring non-masked ***area***, etc.
Patent Assignee: TATEYAMA ALUMINUM KOGYO KK (TATE-N)
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 57149491	A	19820916	JP 8133544	A	19810309	198243	B
JP 84005678	B	19840206				198409	

Priority Applications (No Type Date): JP 8133544 A 19810309
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 57149491	A		5		

Abstract (Basic): JP 57149491 A
The Al to be treated is formed with an anodically oxidised film on its furnace in advance, immersed in a metal salt contg. liquid so that a prim. electrolytic colouring treatment is performed, then an electrically insulative transparent resin is ***applied*** or printed to the anodically oxidised film after colouring, for masking it to a desired pattern, the unmasked ***portion*** is decoloured by immersing or electrolysing in bath contg. an inorganic or organic acid or their salt, a sec. colouring treatment is performed in an electrolytic colouring bath having a compsn. different from that of the prim. so that the ***surface*** to be treated is formed with a double-colour patterned film, and a protective paint having good ***coherence*** to the electrically insulative transparent resin is ***applied*** to the ***surface***.
Derwent Class: M11
International Patent Class (Additional): C25D-011/18

89/34/97 (Item 44 from file: 350)
DIALOG(R)File 350:Derwent WPIX

003543086
WPI Acc No: 1982-91079E/198243
Patterning and colouring aluminium (alloy) - using ***two*** electrolytic colouring baths, the ***second*** being used after ***application*** of an electrically insulating transparent ***resin*** ***mask***
Patent Assignee: TATEYAMA ALUMINUM KOGYO KK (TATE-N)
Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 57149490	A	19820916	JP 8133543	A	19810309	198243	B
JP 84005677	B	19840206				198409	

Priority Applications (No Type Date): JP 8133543 A 19810309
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 57149490	A		4		

Abstract (Basic): JP 57149490 A
The Al to be treated is given an anodically oxidised film on its ***surface*** in advance and immersed in a metal salt contg. liq. so that a ***primary*** electrolytic colouring treatment is performed. An electrically insulative transparent resin is ***applied*** or printed on the oxidised film, after it being coloured, to mask it to a desired pattern. A ***secondary*** colouring treatment is performed in an electrolytic colouring bath having a compsn. different from the ***primary*** ***one*** so that the ***surface*** to be treated is formed with a double-colour patterned film. A protective paint having good ***coherence*** to the electrically insulative transparent resin is ***applied*** to the ***surface***.

Without using any dyestuff or pigment, a double-coloured pattern is provided on the Al material
Derwent Class: M11
International Patent Class (Additional): C25D-011/18

89/34/98 (Item 45 from file: 350)
DIALOG(R)File 350:Derwent WPIX

002019489
WPI Acc No: 1978-32520A/197818
Selective internal coating of articles, esp. electric lamp bulbs - by vacuum evapn., using flexible ***elastomer*** ***mask*** fed through bulb neck
Patent Assignee: FAB REUNIES LAMPES (REUN-N)
Inventor: BROUSSE J; DEISS C
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
FR 2360685	A	19780407				197818	B

Priority Applications (No Type Date): FR 7536324 A 19751127

Abstract (Basic): FR 2360685 A
Mask is for the selective coating of a ***surface*** e.g. with Al by vacuum evapn., esp. for ***masking*** part of the internal ***surface*** of a bulb used for an electric lamp or an electronic tube. The dimension of the ***mask*** at 90 degrees to the neck of the bulb is larger than the bore dia. of the bulb neck; and the ***mask***

has a structure and texture providing flexibility, so it assumes its natural shape when inside the bulb.

The ***mask*** is mounted on a support so it can be fed into, and ***removed*** from the bulb via the bulb neck. The ***mask*** is pref. made at least partly of a homogeneous ***elastomer***; a cellular ***elastomer*** with closed cells; and/or an ***elastomer*** foil with constant ***thickness*** plus a contour and dimensions matching the ***surface*** to be ***shielded***. The ***thickness*** of the ***mask*** may alternatively decrease away from its support, and/or be ribbed. More than one foil may be used to make the ***mask***; and a second ***mask*** may be mounted on the support.

Derwent Class: L01; L03; M13; X26
International Patent Class (Additional): C23C-013/08; H01K-003/00

89/34/99 (Item 46 from file: 350)
DIALOG(R)File 350:Derwent WPIX

001521828
WPI Acc No: 1976-J4763X/197639
Elasticised gas ***mask*** harness - has lower straps curved to ***conform*** comfortably with head of wearer
Patent Assignee: CANADA MIN NAT DEFENCE (MIND)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
CA 996301	A	19760907				197639	B

Priority Applications (No Type Date): CA 140861 A 19720428

Abstract (Basic): CA 996301 A

The gas mask head harness consists of an elasticized material piece having an upper transverse region, a lower transverse region, two longitudinal regions, and two lower extending parts. The upper transverse region is shorter in ***length*** than the lower transverse region, so that with the longitudinal regions, there is formed a harness which will ***conform*** to the shape of the head of the wearer. Straps are secured to the upper part of the upper transverse region. The central part of each longitudinal region and the lower end of each extending parts and the lower extending parts are each curved so that, during use, when the harness is placed upon the head of the wearer, it will comfortably fit the head with the lower extending parts crossing each other below the back of the head. The harness is capable of comfortably supporting a gas mask from the straps.

Derwent Class: P21
International Patent Class (Additional): A41B-000/01
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     (FILE 'HOME' ENTERED AT 14:52:07 ON 18 AUG 2005)

     FILE 'HCAPLUS' ENTERED AT 14:52:21 ON 18 AUG 2005
                E JACKMAN REBECCA?/AU
                E JACKMAN REBECCA/AU
                E JACKMAN R J/AU
L1            5 SEA ABB=ON  PLU=ON  "JACKMAN R J"/AU
                E JACKMAN REBECCA?/AU
L2           39 SEA ABB=ON  PLU=ON  JACKMAN REBECCA?/AU
L3           44 SEA ABB=ON  PLU=ON  L1 OR L2
L4       113548 SEA ABB=ON  PLU=ON  MASK? OR PHOTOMASK? OR (PHOTO# OR
                POSITIVE OR NEGATIVE)(A)MASK?
L5           11 SEA ABB=ON  PLU=ON  L4 AND L3
                D SCAN
                D L5 1-11 CBIB
                D L5 4 ALL
L6        87050 SEA ABB=ON  PLU=ON  SHIELD? OR PHOTOSHIELD? OR PHOTO(A)SH
                IELD?
L7            1 SEA ABB=ON  PLU=ON  L3 AND L6
L8           11 SEA ABB=ON  PLU=ON  L7 OR L5
                E WHITESIDES/AU
                E WHITESIDES G/AU
L9         1085 SEA ABB=ON  PLU=ON  ("WHITESIDES G M"/AU OR "WHITESIDES
                GEORGE"/AU OR "WHITESIDES GEORGE M"/AU OR "WHITESIDES
                GEORGE MCCLELLAND"/AU)
L10      198884 SEA ABB=ON  PLU=ON  L4 OR L6
L11          63 SEA ABB=ON  PLU=ON  L9 AND L10
L12          31 SEA ABB=ON  PLU=ON  L9 AND L3
L13          10 SEA ABB=ON  PLU=ON  L12 AND L10
L14          11 SEA ABB=ON  PLU=ON  L8 OR L13
L15        3103 SEA ABB=ON  PLU=ON  DUFFY ?/AU
L16         121 SEA ABB=ON  PLU=ON  VAETH ?/AU
L17       19841 SEA ABB=ON  PLU=ON  JENSEN ?/AU
L18           4 SEA ABB=ON  PLU=ON  L14 AND ((L15 OR L16 OR L17))
                D SCAN
L19        2328 SEA ABB=ON  PLU=ON  POLYM?(2A)L10
L20             QUE ABB=ON  PLU=ON  POLYMER## OR HOMOPOLYMER## OR
                COPOLYMER## OR TERPOLYMER## OR RESIN? OR GUM?
L21        5188 SEA ABB=ON  PLU=ON  L10(3A)L20
                E BIOLOGICAL/CT
L22       14933 SEA ABB=ON  PLU=ON  BIOL?(2A)AGENT?
L23           2 SEA ABB=ON  PLU=ON  L22 AND L19
                D SCAN
L24             QUE ABB=ON  PLU=ON  ADDITIVE? OR RETARDER? OR IMPROVER?
                OR STABILIZER? OR STABILISER? OR INHIBITOR? OR MODIFIER?
                OR ACTIVATOR? OR DEACTIVATOR? OR APPRECIATOR? OR
                BOOSTER? OR SUPPRESSOR? OR SCAVENGER? OR ENHANCER? OR
                ACCELERAT!R? OR ACCELERANT? OR AGENT?
L25       33550 SEA ABB=ON  PLU=ON  BIOL?(2A)L24
L26           6 SEA ABB=ON  PLU=ON  L22 AND L21
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                 D SCAN
L27       781254 SEA ABB=ON  PLU=ON  MM OR MILLIMETER? OR MILLI(W)METER?
L28          188 SEA ABB=ON  PLU=ON  L27 AND L19
L29            0 SEA ABB=ON  PLU=ON  L28 AND L25
L30            0 SEA ABB=ON  PLU=ON  L28 AND L22
L31           32 SEA ABB=ON  PLU=ON  L28 AND (BIO? OR AGENT?)
L32            0 SEA ABB=ON  PLU=ON  L31 AND (L3 OR L9)
L33           64 SEA ABB=ON  PLU=ON  L10 AND (L3 OR L9)
L34            5 SEA ABB=ON  PLU=ON  L19 AND L33
                 D SCAN
L35            0 SEA ABB=ON  PLU=ON  L28 AND (L3 OR L9)
L36         1714 SEA ABB=ON  PLU=ON  L4 AND L6
L37           23 SEA ABB=ON  PLU=ON  L36 AND L19
L38            0 SEA ABB=ON  PLU=ON  L37 AND L14
L39            0 SEA ABB=ON  PLU=ON  L37 AND (L3 OR L9)
                 D QUE L20
L40      1534001 SEA ABB=ON  PLU=ON  SHIELD? OR BLOCK? OR PROTECT? OR
                 COVER?
L41       118020 SEA ABB=ON  PLU=ON  ?MASK?
L42        18001 SEA ABB=ON  PLU=ON  L41 AND L40
L43       769525 SEA ABB=ON  PLU=ON  UNSHIELD? OR UNBLOCK? OR UNPROTECT?
                 OR EXPOS? OR UN(A)(SHIELD? OR BLOCK? OR PROTECT?)
L44         4836 SEA ABB=ON  PLU=ON  L42 AND L43
                 D QUE L20
L45          814 SEA ABB=ON  PLU=ON  L44 AND (L20 OR POLYM?)
L46          297 SEA ABB=ON  PLU=ON  L45 AND (L27 OR DIMEN? OR THICK? OR
                 THIN? OR WIDTH? OR WIDE? OR LENGTH? OR LONG?)
L47          157 SEA ABB=ON  PLU=ON  L46 AND (SURFAC? OR EDG? OR TOP? OR
                 BOTTOM? OR SIDE?)
L48          120 SEA ABB=ON  PLU=ON  L47 AND SURFAC?
L49           25 SEA ABB=ON  PLU=ON  L48 AND (FIRST OR SECOND OR 1ST OR
                 2ND)
L50           32 SEA ABB=ON  PLU=ON  L48 AND (CONTACT? OR TOUCH? OR UPON)

L51            9 SEA ABB=ON  PLU=ON  L50 AND L49
                 D SCAN
                 D L51 1-9 KWIC
                 D SCAN TI
L52            3 SEA ABB=ON  PLU=ON  L48 AND PROX?
                 D SCAN
L53           18 SEA ABB=ON  PLU=ON  L48 AND (BIO? OR AGENT?)
                 D SCAN TI
L54         2589 SEA ABB=ON  PLU=ON  L41(3A)(POLYM? OR L20)
L55        10965 SEA ABB=ON  PLU=ON  CURV?(3A)SURFAC?
L56            8 SEA ABB=ON  PLU=ON  L54 AND L55
                 D SCAN
                 D SCAN TI
L57        10861 SEA ABB=ON  PLU=ON  BIO?(A)AGENT?
L58            0 SEA ABB=ON  PLU=ON  L57 AND L48
L59            0 SEA ABB=ON  PLU=ON  L57 AND L47
L60            5 SEA ABB=ON  PLU=ON  L57 AND L44
                 D SCAN
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L61        30704 SEA ABB=ON  PLU=ON  BIO?(3A)AGENT?
L62           39 SEA ABB=ON  PLU=ON  L61 AND L42
                 D SCAN TI
                 D QUE L62
L63            9 SEA ABB=ON  PLU=ON  L62 AND POLYM?
                 D SCAN TI
L64          127 SEA ABB=ON  PLU=ON  L45 AND L24
L65            0 SEA ABB=ON  PLU=ON  L64 AND (L3 OR L9)
                 D QUE L48
L66          306 SEA ABB=ON  PLU=ON  L45 AND SURFAC?
L67           67 SEA ABB=ON  PLU=ON  L66 AND CONTACT?
L68            5 SEA ABB=ON  PLU=ON  L67 AND L24
                 D SCAN
L69           16 SEA ABB=ON  PLU=ON  L67 AND (FIRST OR SECOND OR 1ST OR
                 2ND)
L70          202 SEA ABB=ON  PLU=ON  L45 AND (EDG? OR TOP? OR BOTTOM? OR
                 SIDE?)
L71          409 SEA ABB=ON  PLU=ON  L70 OR L66
                 D QUE
                 D QUE L46
L72          157 SEA ABB=ON  PLU=ON  L71 AND (L27 OR DIMEN? OR THICK? OR
                 THIN? OR WIDTH? OR WIDE? OR LENGTH? OR LONG?)
                 D QUE
L73           25 SEA ABB=ON  PLU=ON  L72 AND L24
                 D SCAN TI
L74            0 SEA ABB=ON  PLU=ON  L55 AND L73
L75            4 SEA ABB=ON  PLU=ON  L55 AND L71
                 D SCAN
L76          291 SEA ABB=ON  PLU=ON  L41(3A)COSMET?
                 D L18 1-4 KWIC
L77          226 SEA ABB=ON  PLU=ON  CONFORM?(3A)L4
L78          261 SEA ABB=ON  PLU=ON  CONFORM?(3A)L41
L79           35 SEA ABB=ON  PLU=ON  L78 NOT L77
                 D L79 1-5 KWIC
                 D L77 1-5 KWIC
L80           11 SEA ABB=ON  PLU=ON  L14 OR L18
                 D L80 1-11 ALL
L81            7 SEA ABB=ON  PLU=ON  L77(3A)ELAST?
                 D SCAN
L82            7 SEA ABB=ON  PLU=ON  L78(3A)ELAST?
L83            7 SEA ABB=ON  PLU=ON  L81 OR L82
L84          160 SEA ABB=ON  PLU=ON  L4(3A)ELAST?
L85          166 SEA ABB=ON  PLU=ON  L41(3A)ELAST?
L86          166 SEA ABB=ON  PLU=ON  L84 OR L85
L87            7 SEA ABB=ON  PLU=ON  L86(5A)CONFORM?
                 D SCAN
L88            9 SEA ABB=ON  PLU=ON  L86 AND CONFORM?
                 D SCAN TI
L89            3 SEA ABB=ON  PLU=ON  L88 AND L24
                 D SCAN
L90           27 SEA ABB=ON  PLU=ON  L86 AND L24
L91           26 SEA ABB=ON  PLU=ON  L90 NOT L76
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                D QUE
L92           3 SEA ABB=ON  PLU=ON  L91 AND CONFORM?
                D SCAN TI
L93          25 SEA ABB=ON  PLU=ON  L91 NOT COSMET?
L94           2 SEA ABB=ON  PLU=ON  L93 AND CONFORM?
                D QUE L72
L95          52 SEA ABB=ON  PLU=ON  L86 AND (L27 OR DIMEN? OR THICK? OR
                THIN? OR WIDTH? OR WIDE? OR LENGTH? OR LONG?)
L96           5 SEA ABB=ON  PLU=ON  L95 AND CONFORM?
L97           4 SEA ABB=ON  PLU=ON  L96 NOT COSMET?
                D SCAN
L98           4 SEA ABB=ON  PLU=ON  L95 AND (SHIELD? OR UNSHIELD? OR
                EXPOS?)
                D SCAN
L99           7 SEA ABB=ON  PLU=ON  L97 OR L98
L100         13 SEA ABB=ON  PLU=ON  L83 OR (L87 OR L88 OR L89) OR L92 OR
                L94 OR (L96 OR L97 OR L98)
L101         12 SEA ABB=ON  PLU=ON  L100 NOT COSMET?
                D QUE L37
                D SCAN L37 TI
                D SCAN L49 TI
                D SCAN L50 TI
                D QUE L62
L102        159 SEA ABB=ON  PLU=ON  L23 OR L26 OR L34 OR L37 OR (L49 OR
                L50 OR L51 OR L52 OR L53) OR L56 OR L60 OR L62 OR L63 OR
                L69 OR L73
L103          4 SEA ABB=ON  PLU=ON  L102 AND CONFORM?
                D SCAN
L104          2 SEA ABB=ON  PLU=ON  L67 AND CONFORM?
L105          4 SEA ABB=ON  PLU=ON  L103 OR L104
L106        101 SEA ABB=ON  PLU=ON  L102 AND POLYM?
L107        156 SEA ABB=ON  PLU=ON  L102 AND (L4 OR L41)
L108         99 SEA ABB=ON  PLU=ON  L107 AND POLYM?
L109         25 SEA ABB=ON  PLU=ON  L108 AND SHIELD?
L110         93 SEA ABB=ON  PLU=ON  L108 AND L40
L111         63 SEA ABB=ON  PLU=ON  L110 AND L43
L112         19 SEA ABB=ON  PLU=ON  L111 AND (FIRST OR SECOND OR 1ST OR
                2ND)
                D QUE L52
                D QUE L72
L113         64 SEA ABB=ON  PLU=ON  L108 AND (L27 OR DIMEN? OR THICK? OR
                THIN? OR WIDTH? OR WIDE? OR LENGTH? OR LONG?)
L114         55 SEA ABB=ON  PLU=ON  L111 AND L113
L115         80 SEA ABB=ON  PLU=ON  L114 OR L112 OR L109 OR L105
L116         79 SEA ABB=ON  PLU=ON  L115 NOT COSMET?
L117         90 SEA ABB=ON  PLU=ON  L101 OR L116
L118         78 SEA ABB=ON  PLU=ON  L116 NOT L101
L119         18 SEA ABB=ON  PLU=ON  L80 OR L101
L120         78 SEA ABB=ON  PLU=ON  L116 NOT L119


=> => d l119 1-18 cbib abs hitstr hitind
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L119 ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:523372 Document No. 143:50716 Methods and devices for fabricating three-**dimensional** nanoscale structures. Rogers, John A.; Jeon, Seokwoo; Park, Jangung (The Board of Trustees of the University of Illinois, USA). PCT Int. Appl. WO 2005054119 A2 20050616, 101 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-US40192 20041201. PRIORITY: US 2003-2003/PV52624U 20031201; US 2004-2004/PV598404 20040802.

AB The present invention provides methods and devices for fabricating 3D structures and patterns of 3D structures on substrate surfaces, including sym. and asym. patterns of 3D structures. Methods of the present invention provide a means of fabricating 3D structures having accurately selected phys. **dimensions**, including lateral and vertical **dimensions** ranging from 10s of nanometers to 1000s of nanometers. In one aspect, methods are provided using a **mask** element comprising a **conformable**, **elastomeric** phase **mask** capable of establishing **conformal** contact with a radiation sensitive material undergoing photoprocessing. In another aspect, the temporal and/or spatial coherence of electromagnetic radiation using for photoprocessing is selected to fabricate complex structures having nanoscale features that do not extend entirely through the **thickness** of the structure fabricated.

IC ICM B82B

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 73, 76

ST three **dimensional** nanoscale structure fabrication photolithog holog electromagnetic radiation

IT Lithography
(holog.; methods and devices for fabricating three-**dimensional** nanoscale structures)

IT Holography
(lithog.; methods and devices for fabricating three-**dimensional** nanoscale structures)

IT Electromagnetic wave
Lithographic apparatus
Nanostructures
(methods and devices for fabricating three-**dimensional** nanoscale structures)

L119 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:178186 Recent progress in soft lithography. Rogers, John A.;

Nuzzo, Ralph G. (Departments of Materials Science and Engineering, Chemistry, Beckman Institute, and Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL, 61801, USA). Materials Today (Oxford, United Kingdom), 8(2), 50-56 (English) 2005. CODEN: MTOUAN. ISSN: 1369-7021. Publisher: Elsevier Ltd..

AB The future of nanoscience and nanotechnol. depends critically on techniques for micro- and nanofabrication. An emerging set of methods, known collectively as soft lithog., uses **elastomeric** stamps, molds, and **conformable** **photomasks** for patterning two- and three-dimensional structures with min. feature sizes deep into the nanometer regime. The powerful patterning capabilities of these techniques together with their exptl. simplicity make them useful for a wide range of applications. This article reviews recent progress in the field of soft lithog., with a focus on trends in research and steps toward commercialization.

CC 74 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

L119 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

2004:592912 Document No. 142:363631 Nanopatterning with **conformable** phase masks. Maria, Joana; Jeon, Seokwoo; Rogers, John A. (Department of Materials Science and Engineering, Frederick Seitz Materials Research Laboratory, Beckman Institute for Advanced Science and Technology, University of Illinois, Urbana/Champaign, Urbana, IL, 61801, USA). Journal of Photochemistry and Photobiology, A: Chemistry, 166(1-3), 149-154 (English) 2004. CODEN: JPPCEJ. ISSN: 1010-6030. Publisher: Elsevier B.V..

AB This paper describes an approach for using conventional photoresist materials to pattern structures with **dimensions** as small as 50 nm. This method, known as near field phase shift lithog. (NFPSL), is an exptl. simple approach to nanofabrication that relies on UV **exposure** of a layer of resist while it is in **conformal**, atomic scale contact with such an **elastomeric** phase **mask.** This paper presents some representative structures produced with this method; it illustrates an example of its use in patterning the critical **dimensions** of organic transistors; and it outlines some new modeling results of the optics associated with this technique.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

ST phase shift photolithog nanopatterning **conformable** **elastomeric** phase **mask**

IT Silicone rubber, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(di-Me, Sylgard 184; near-field phase shift lithog. nanopatterning using **conformable elastomeric** phase **masks**)

IT Photolithography
Photomasks (lithographic masks)
Photoresists
(near-field phase shift lithog. nanopatterning using **conformable elastomeric** phase **masks**)

IT **Thin** film transistors
(near-field phase shift lithog. nanopatterning using **conformable elastomeric** phase **masks** for fabrication of TFT)

IT 201168-03-8, S 1805
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(near-field phase shift lithog. nanopatterning using **conformable elastomeric** phase **masks**)

IT 7631-86-9, Silica, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(near-field phase shift lithog. nanopatterning using **conformable elastomeric** phase **masks** for fabrication of TFT)

IT 7440-21-3, Silicon, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(wafer; near-field phase shift lithog. nanopatterning using **conformable elastomeric** phase **masks** for fabrication of TFT)

L119 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

2004:508852 Document No. 141:62105 Transparent **elastomeric**, contact-mode photolithography **mask**, sensor, and wavefront engineering element. Rogers, John A.; **Jackman, Rebecca J.**; Paul, Kateri E.; Schueller, Olivier J. A.; Breen, Tricia Lynn; **Whitesides, George M.** (President and Fellows of Harvard College, USA). U.S. US 6753131 B1 20040622, 37 pp., Cont.-in-part of U.S. Ser. No. 853,050, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1999-422611 19991021. PRIORITY: US 1996-681003 19960722; US 1997-853050 19970508; US 1999-PV115524 19990112.

AB A contact-mode photolithog. phase **mask** includes a diffracting surface having a plurality of indentations and protrusions. The protrusions are brought into contact with a surface of pos. photoresist, and the surface exposed to electromagnetic radiation through the phase **mask.** The phase shift due to radiation passing through the indentations as opposed to the protrusions is essentially complete. Min. in intensity of electromagnetic radiation are thereby produced at boundaries between the indentations and protrusions. The **elastomeric mask conforms** well to the surface of photoresist and, following development, features smaller than 100 nm can be obtained. Patterns including curved portions are

obtained, as well as curved and/or linear patterns on non-planar surfaces. An elastomeric transparent diffraction grating serves also as a spatial light modulator photothermal detector, strain gauge, and display device. A technique for simplified photolithog. is also described. A photoreactive, contoured surface is exposed to elec.-magnetic radiation and contours in the surface alters the electromagnetic radiation to promote selective surface photoreaction. The contours can act as lenses, gratings, or the like, such that the photoreactive surface itself can selectively direct uniform radiation to promote selective photoreaction within itself. A photoresist layer having a contoured surface thus can be exposed to uniform radiation, without a **mask**, followed by development and lift-off to create a photoresist pattern that can be used in any of a variety of ways. The invention provides methods of making contoured, photoreactive surfaces, and contoured photoreactive surfaces themselves.

IC ICM G03C005-00
ICS G03F009-00

INCL 430322000; 430396000; 430005000; 430022000

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST transparent **elastomeric** contact mode photolithog. **mask** sensor wavefront

IT Electromagnetic wave
Photolithography
Photomasks (lithographic **masks**)
Positive photoresists
(transparent **elastomeric**, contact-mode photolithog. **mask**, sensor, and wavefront engineering element)

IT 7440-57-5, Gold, uses 7631-86-9, Silica, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate; transparent **elastomeric**, contact-mode photolithog. **mask**, sensor, and wavefront engineering element)

L119 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

2003:169640 Document No. 139:252392 Near-field **elastomeric mask** photolithography fabrication of high-frequency surface acoustic wave transducers. Hesjedal, T.; Seidel, W. (Paul-Drude-Institut fur Festkorperelektronik, Berlin, D-10117, Germany). Nanotechnology, 14(1), 91-94 (English) 2003. CODEN: NNOTER. ISSN: 0957-4484. Publisher: Institute of Physics Publishing.

AB Optical lithog. is the method of choice for mass production of electronic as well as acoustic devices. Cost issues, in particular, make it superior over slow but high-resolution methods, such as electron beam lithog. Also, its applicability for nonconductive substrates is an important feature for acoustic device fabrication on ceramics. In order to be able to continue the use of diffraction-limited optical lithog., new schemes have been developed that enhance the resolution Rather complex phase-shifting masks, for instance, alter both the amplitude and the phase of the

exposing light and lead to higher resolution However, by using an **elastomeric** phase **mask** derived from a photoresist master (made by conventional photolithog.), features as small as 90 nm have been demonstrated. The authors report on the application of the near-field phase shift technique for the fabrication of surface acoustic wave (SAW) devices. This technique is best suited for the fabrication of narrow electrode gap SAW devices that are designed for the efficient SAW excitation at higher harmonics. The combination of near-field phase shift lithog. with narrow-gap SAW designs thus opens up a way for simple and low-cost SAW devices operating above 5 GHz.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST surface acoustic wave transducer near field photolithog **elastomeric mask**

IT Silicone rubber, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(di-Me, Sylgard 184; fabrication of high-frequency surface acoustic wave transducers by near-field photolithog. using **elastomeric** phase **mask**)

IT Acoustic devices
Acoustic transducers
(fabrication of high-frequency surface acoustic wave transducers by near-field photolithog. using **elastomeric** phase **mask**)

IT Photomasks (lithographic masks)
(fabrication of surface acoustic wave transducers by near-field photolithog. using **elastomeric** phase **mask** derived from photoresist master)

IT Photolithography
(near-field; fabrication of high-frequency surface acoustic wave transducers by near-field photolithog. using **elastomeric** phase **mask**)

IT 104137-08-8, AZ 5214
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(master; fabrication of surface acoustic wave transducers by near-field photolithog. using **elastomeric** phase **mask** derived from photoresist master)

IT 12031-63-9, Lithium niobate ($LiNbO_3$) 259735-42-7, **WiDE**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(wafer; fabrication of high-frequency surface acoustic wave transducers by near-field photolithog. using **elastomeric** phase **mask**)

L119 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
2001:705127 Cell patterning technique. Ostuni, Emanuele; Kane, Ravi;

Duffy, David C.; Jackman, Rebecca J.;
Whitesides, George M. (President and Fellows of Harvard College, USA). PCT Int. Appl. WO 2001070389 A2 20010927 DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US8206 20010315. PRIORITY: US 2000-PV190399 20000317.

AB The present invention provides a **masking** system for selectively applying cells to predetermined regions of a surface. A **mask** is positioned adjacent to a surface to cover some portions of the surface while allowing other portions of the surface to remain uncovered. Cells then are applied to uncovered portions of the surface and the **mask** removed. Alternatively, a cell-adhesion promoter is applied to uncovered portions of the surface, and then cells are applied to the surface before or after removal of the **mask** from the surface. The **masking** system can be pre-coated, at least on those surfaces which will come into contact with cells, with a cell-adhesion **inhibitor** to resist absorption of cells and thereby avoid cell damage when the **mask** is removed (if cells are deposited prior to removal of the **mask**). A polymeric **elastomeric mask** that comes into cohesive-**conformal** contact with a surface to be patterned can be used.

IC ICM B01J019-00

L119 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

2001:546600 Document No. 135:264437 A soft lithographic approach to the fabrication of single crystalline silicon nanostructures with well-defined **dimensions** and shapes. Yin, Yadong; Gates, Byron; Xia, Younan (Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195, USA). Materials Research Society Symposium Proceedings, 636(Nonlithographic and Lithographic Methods of Nanofabrication: From Ultralarge-Scale Integration to Photonics to Molecular Electronics), D4.2/1-D4.2/6 (English) 2001. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.

AB A procedure was developed for large-scale fabrication of nanometer-sized structures of single crystalline silicon with well-defined **dimensions** and shapes. Near-field optical lithog. was used to define the nanostructures in a **thin** film of pos.-tone photoresist with an **elastomeric** phase **mask.** The nanostructures were then transferred into the underlying silicon-on-insulator (SOI) substrate through a reactive ion etching (RIE) process. With this method, the authors can routinely generate silicon nanostructures .apprx.130 nm in lateral **dimension.** They can be supported on the surface of a solid

substrate as a patterned array, or released into a freestanding form. The lateral **dimension** of these silicon structures could be further reduced to as small as .apprx.40 nm using stress-limited oxidation at elevated temps. The flexibility of this approach was demonstrated by fabricating nanoscale wires, rods, rings, and interconnected triangles of silicon. Using a two-step **exposure** method, the silicon nanowires can be precisely "cut" into silicon nanorods with specific **lengths.**

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

ST photolithog fabrication single cryst silicon nanostructure defined **dimension** shape; near field optical lithog silicon nanostructure defined **dimension** shape

IT Silicone rubber, uses
RL: DEV (Device component use); USES (Uses)
(di-Me, Sylgard 184, phase mask; near-field optical lithog. in combination with reactive ion etching and stress-limited oxidation for fabrication of single crystalline silicon nanostructures with well-defined **dimensions** and shapes)

IT Sputtering
(etching, reactive; near-field optical lithog. in combination with reactive ion etching and stress-limited oxidation for fabrication of single crystalline silicon nanostructures with well-defined **dimensions** and shapes)

IT Photolithography
(near-field optical lithog. in combination with reactive ion etching and stress-limited oxidation for fabrication of single crystalline silicon nanostructures with well-defined **dimensions** and shapes)

IT Etching
(sputter, reactive; near-field optical lithog. in combination with reactive ion etching and stress-limited oxidation for fabrication of single crystalline silicon nanostructures with well-defined **dimensions** and shapes)

IT 7440-21-3, Silicon, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(near-field optical lithog. in combination with reactive ion etching and stress-limited oxidation for fabrication of single crystalline silicon nanostructures with well-defined **dimensions** and shapes)

IT 154214-84-3, Shipley 1805
RL: NUU (Other use, unclassified); USES (Uses)
(near-field optical lithog. in combination with reactive ion etching and stress-limited oxidation for fabrication of single crystalline silicon nanostructures with well-defined **dimensions** and shapes)

IT 7631-86-9, Silica, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(near-field optical lithog. in combination with reactive ion etching and stress-limited oxidation for fabrication of single

crystalline silicon nanostructures with well-defined **dimensions** and shapes)

IT 9016-00-6, Poly(dimethylsiloxane) 31900-57-9, Poly(dimethylsiloxane)
RL: DEV (Device component use); USES (Uses)
(phase mask; near-field optical lithog. in combination with reactive ion etching and stress-limited oxidation for fabrication of single crystalline silicon nanostructures with well-defined **dimensions** and shapes)

L119 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
2001:276687 Document No. 135:99719 Optimization of **elastomeric** phase **masks** for near-field photolithography. Li, Zhi-Yuan; Yin, Yadong; Xia, Younan (Department of Chemistry, University of Washington, Seattle, WA, 98195, USA). Applied Physics Letters, 78(17), 2431-2433 (English) 2001. CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of Physics.

AB Rigorous electromagnetic theory has been used to optimize **elastomeric** phase **masks** for generating sub-100-nm parallel lines by means of near-field photolithog. J. A. Rogers [etal.], Appl. Phys. Lett. 70, 2658 (1997). In the near-field region, the scattering effect is so strong that the scalar theory is no **longer** adequate: a bright line was found adjacent to the dark line previously predicted by the scalar theory, and the **widths** of both lines were found to be insensitive to the refractive index of the photoresist. The simulation results are in good agreement with exptl. studies, which showed that the bright and dark lines could be used to generate trenches and lines in a pos.-tone photoresist by controlling the **exposure** time. The authors simulations also indicate that parallel lines as small as 50 nm can be generated by adjusting the parameters of the phase mask.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST optimization **elastomeric** phase **mask** near field photolithog; electromagnetic theory optimization **elastomeric** phase **mask** near field photolithog

IT Photomasks (lithographic masks)
Photoresists
Refractive index
(electromagnetic theory for optimization of **elastomeric** phase **masks** for near-field photolithog.)

IT Polysiloxanes, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(electromagnetic theory for optimization of **elastomeric** phase **masks** for near-field photolithog.)

IT 9016-00-6, poly(dimethylsiloxane) 31900-57-9, poly(dimethylsiloxane)
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(electromagnetic theory for optimization of **elastomeric** phase **masks** for near-field photolithog.)

IT 201168-03-8, S 1805

RL: TEM (Technical or engineered material use); USES (Uses)
(electromagnetic theory for optimization of **elastomeric** phase **masks** for near-field photolithog.)

L119 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
2000:592456 Document No. 133:200653 Method for making optical fiber devices having variable thickness metal coatings. Eggleton, Benjamin John; **Jackman, Rebecca Jane**; Rogers, John A.; Strasser, Thomas A. (Lucent Technologies Inc., USA). Eur. Pat. Appl. EP 1030197 A2 20000823, 8 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-301031 20000209. PRIORITY: US 1999-252704 19990218.

AB Methods for making optical fiber devices having metal coatings of controlled variable thickness are described which entail providing a length of optical fiber to be coated and a shadow **mask** to define the coating pattern; disposing the fiber in position for receiving coating metal from a metal source and disposing the **mask** between the source and the fiber; activating the metal source to emit coating metal and moving the **mask** in relation to the fiber to control the access of metal to the fiber and thereby control the variation of deposited metal thickness along fiber. Preferably, the **mask** is translated at a constant velocity perpendicular to the fiber. The method is particularly useful for the fabrication of adjustable Bragg gratings. Devices manufactured using the methods are also described.

IC ICM G02B006-16

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 75

IT Diffraction gratings
Optical fibers
Vapor deposition process
(optical fiber devices having variable thickness metal coatings fabricated using moving **masks**)

IT 7429-90-5, Aluminum, uses 7440-06-4, Platinum, uses 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses 7440-57-5, Gold, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(optical fiber devices having variable thickness metal coatings fabricated using moving **masks**)

L119 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1999:691307 Document No. 131:315841 Elastomeric **mask** and use in fabrication of devices, including pixelated electroluminescent displays. **Jackman, Rebecca J.**; **Duffy, David C.**; **Whitesides, George M.**; **Vaeth, Kathleen M.**; **Jensen, Klavs F.** (President and Fellows of Harvard College, USA; Massachusetts Institute of Technology). PCT Int. Appl. WO 9954786 A1 19991028, 65 pp. DESIGNATED STATES: W: CA, JP, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US8623

19990420. PRIORITY: US 1998-63742 19980421.

AB An elastomeric **mask** that allows deposition of a variety of materials through **mask** openings is claimed. The **mask** seals effectively against substrate surfaces, allowing simple deposition from fluid phase, gas phase, and the like or removal of material using gaseous or liquid etchants. The **mask** then can be simply peeled from the surface of the substrate leaving the patterned material behind. Multilayered **mask** techniques are described in which openings in an upper **mask** allow selected openings of a lower **mask** to remain unshielded, while other openings of the lower **mask** are **shielded.** A 1st deposition step, followed by reorientation of the upper **mask** to expose a different set of lower **mask** openings, allows selective deposition of different materials in different openings of the lower **mask** . Pixelated organic electroluminescent devices are provided via the described technique.

IC ICM G03F007-00
ICS G03F001-00; G03F007-12; B41C001-14

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

ST elastomeric **mask** fabrication pixelated electroluminescent display

IT Silicone rubber, uses
RL: MOA (Modifier or additive use); USES (Uses)
(di-Me, Sylgard 184; fabrication of elastomeric **mask** for use in pixelated electroluminescent display devices using polydimethylsiloxane spin-coated with)

IT Electroluminescent devices
(fabrication of elastomeric **mask** for use in pixelated electroluminescent display devices using polydimethylsiloxane)

IT Lithography
Photomasks (lithographic **masks**)
Resists
(in fabrication of elastomeric **mask** for use in pixelated electroluminescent display devices using polydimethylsiloxane)

IT 50926-11-9, Indium tin oxide
RL: MOA (Modifier or additive use); USES (Uses)
(fabrication of elastomeric **mask** for use in pixelated electroluminescent display devices using polydimethylsiloxane on substrate of)

IT 2917-26-2, Hexadecanethiol 7440-32-6, Titanium, uses 7440-57-5, Gold, uses 205599-83-3, Epo-Tek UVO 114
RL: MOA (Modifier or additive use); USES (Uses)
(fabrication of elastomeric **mask** for use in pixelated electroluminescent display devices using polydimethylsiloxane spin-coated with)

IT 7440-21-3, Silicon, uses 9016-00-6, Polydimethylsiloxane 31900-57-9, Polydimethylsiloxane
RL: DEV (Device component use); TEM (Technical or engineered

material use); USES (Uses)
   (in fabrication of elastomeric **mask** for use in devices
   including pixelated electroluminescent displays)

IT 78560-45-9
   RL: RCT (Reactant); RACT (Reactant or reagent)
   (in surface treatment of silicon wafer for fabrication of
   elastomeric **mask** for use in electroluminescent
   displays)

L119 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1999:327096 Document No. 130:359127 Patterning electroluminescent
materials with feature sizes as small as 5 μm using
elastomeric membranes as **masks** for dry lift-off.
**Duffy, David C.; Jackman, Rebecca J.; Vaeth,
Kathleen M.; Jensen, Klavs F.; Whitesides,
George M.** (Department Chemistry Chemical Biology, Harvard
University, Cambridge, MA, 02138, USA). [redacted]
(Weinheim, Germany)[redacted] CODEN: ADVMEW.
ISSN: 0935-9648. Publisher: Wiley-VCH Verlag GmbH.

AB The fabrication and use of **elastomeric** membranes as
conformal masks to pattern electroluminescent (EL)
materials at feature sizes from 5-500 μm was described.
Therefore, a straightforward, non-photolithog. method for patterning
small (≤50 μm diameter) features was developed and used to
pattern features of both N,N'-diphenyl-N,N'-bis(3-methylphenyl)-1,1'-
biphenyl-4,4'-diamine (TPD), a hole-transporting material, and
tris(8-hydroxyquinoline) aluminum (Alq3), an emitter. The
elastomeric membrane was fabricated by spin-coating a **thin**
layer of pre-polymer of poly(di-Me siloxane) (PDMS) onto a master,
prepared by photolithog., and subsequent curing. The such prepared PDMS
membrane was peeled from the master and brought into
conformal contact with the surface of the wafers. TPD or
Alq3 were evaporated through the membrane forming EL or photoluminescent
devices. Addnl., 2 membranes were used to create multicolor, i.e.
red, green, and blue, PL patterns of organic materials. Multiple
patterning steps allowed also the creation of a composite pattern
composed of several different EL materials.

CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 39, 74

ST elastomeric polydimethylsiloxane membrane patterning
electroluminescent material; shadow **mask**
polydimethylsiloxane electroluminescent device fabrication

IT Membranes, nonbiological
   (elastomeric; patterning electroluminescent materials using
   elastomeric poly(dimethylsiloxane) membranes as **masks**
   for dry lift-off)

IT Electroluminescent devices
Shadow **masks**
   (patterning electroluminescent materials using elastomeric
   poly(dimethylsiloxane) membranes as **masks** for dry
   lift-off)

IT Synthetic rubber, uses
RL: NUU (Other use, unclassified); USES (Uses)
(patterning electroluminescent materials using elastomeric poly(dimethylsiloxane) membranes as **masks** for dry lift-off)
IT 2085-33-8, Aluminum 8-hydroxyquinolinate 65181-78-4, TPD
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(patterning electroluminescent materials using elastomeric poly(dimethylsiloxane) membranes as **masks** for dry lift-off)
IT 9016-00-6, Poly(dimethylsiloxane) 31900-57-9, Poly(dimethylsiloxane)
RL: NUU (Other use, unclassified); USES (Uses)
(patterning electroluminescent materials using elastomeric poly(dimethylsiloxane) membranes as **masks** for dry lift-off)

L119 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1999:183139 Document No. 130:318478 Using Elastomeric Membranes as Dry Resists and for Dry Lift-Off. **Jackman, Rebecca J.**; **Duffy, David C.**; Cherniavskaya, Oksana; **Whitesides, George M.** (Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA, 02138, USA). Langmuir, 15(8), 2973-2984 (English) 1999. CODEN: LANGD5. ISSN: 0743-7463. Publisher: American Chemical Society.
AB Elastomeric membranes that contained regular arrays of well-defined holes were formed by spin-coating a prepolymer onto a photolithog. defined master. These membranes were used as dry resists or as **masks** in dry lift-off to produce simple features ≥5 μm on both planar and nonplanar surfaces. These procedures were dry because the membranes conformed and sealed reversibly to surfaces: no solvent was required either to deposit the membrane or to remove it from the substrate. A variety of materials, some of which would be difficult to pattern using conventional methods, were patterned using this technique. These materials included metals, sol-gels, hydrogels, biol. macromols., and organometallic mols. The membranes were used in sequential, dry-lift off steps to produce structures with greater complexity than those generated with a single membrane.
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

L119 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1998:138956 Fabrication of small structures for and by electrochemistry.. **Whitesides, George M.**; **Jackman, Rebecca**; Deng, Tao; Hu, Junmin; Tien, Joe; Huck, Wilhelm; Jeon, Noo-Li; Schueller, Olivier; Britain, Scott (Department Chemistry and Chemical Biology, Harvard University, Cambridge, MA, 02138, USA). Book of Abstracts, 215th ACS National Meeting, Dallas, March 29-April 2, COLL-067. American Chemical Society: Washington, D. C. (English) 1998. CODEN: 65QTAA.

AB Soft lithog.-micromolding, microprinting, rapid prototyping, and phase-shift lithog. using conformal **masks**-provides a set of new patterning techniques for fabricating structures with dimensions ranging from > 50 µm to < 50 nm. This talk will illustrate these techniques with fabrications of microelectronic and optical devices, and suggest some of their strengths and weaknesses. Combinations of these soft-lithog. techniques offer new routes to micro and nanoelectrochem. systems. When used to form non-planar patterns, and supplemented with electrochem. metal deposition, they also make it possible to fabricate new types of 3-D microstructures, including functional structures (e.g., neg. Poisson's ratio materials) and structures having complex topologies (e.g., chains of closed links).

L119 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1998:96666 Document No. 128:174029 Generating .apprx.90 nanometer features using near-field contact-mode photolithography with an **elastomeric** phase **mask.** Rogers, John A.; Paul, Kateri E.; **Jackman, Rebecca J.; Whitesides, George M.** (Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA, 02138, USA). Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures, 16(1), 59-68 (English) 1998. CODEN: JVTBD9. ISSN: 0734-211X. Publisher: American Institute of Physics.

Dtl JG

AB This article describes a near-field photolithog. method that uses an **elastomeric** phase **mask** in **conformal** contact with photoresist. The method is capable of generating .apprx.90 nm lines in com. available photoresist, using broadband, incoherent light with wavelengths between 330 and 460 nm. Transfer of these patterns into SiO2 and Au demonstrates the integrity of the patterned resist.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST silica gold photolithog **mask** nanometer contact; nanometer contact photolithog **elastomeric** phase **mask**

IT Electric contacts
Photolithography
Photoresists
Wavelength
(generating .apprx.90 nm features using near-field contact-mode photolithog. with **elastomeric** phase **mask**)

IT 7440-57-5, Gold, processes 7631-86-9, Silica, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(generating .apprx.90 nm features using near-field contact-mode photolithog. with **elastomeric** phase **mask**)

L119 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1997:783810 Document No. 128:55216 Fabrication of small-scale coils and bands as **photomasks** on optical fibers for generation of in-fiber gratings, and electromagnets as micro-NMR coil. Rogers, John A.; **Jackman, Rebecca J.; Whitesides, George**

M. (President and Fellows of Harvard College, USA). PCT Int. Appl. WO 9744692 A2 19971127, 40 pp. DESIGNATED STATES: W: AU, CA, JP; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1997-US8144 19970509. PRIORITY: US 1996-19065 19960509; US 1996-681235 19960722.

AB Techniques for fabrication of small-scale metallic structures such as microinductors, microtransformers, and stents are described. A chemical active agent such as a catalyst is applied from an applicator in a pattern to an exterior surface of an article, metal is deposited according to the pattern and optionally, removed from the substrate. Where the substrate is cylindrical, the pattern can serve as a stent. Alternatively, a pattern of a self-assembled monolayer can be printed on a surface, which pattern can dictate metal plating or etching resulting in a patterned metal structure that can be cylindrical. In another embodiment, a structure is patterned on a surface that serves as a phase-modulating pattern or amplitude-modulating pattern. The article subsequently is exposed to radiation that can induce a change in refractive index within the article, and the phase-modulating or amplitude-modulating pattern results in different indexes of refraction being created in different portions of the article. By this technique, a grating can be written into a core of an optical fiber.

IC ICM G02B006-16

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 56, 63, 76, 77

IT **Photomasks** (lithographic **masks**)
(fabrication of small-scale coils and bands)

L119 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

1997:342551 Document No. 127:72920 Using an **elastomeric** phase **mask** for sub-100 nm photolithography in the optical near field. Rogers, John A.; Paul, Kateri E.; **Jackman, Rebecca J.; Whitesides, George M.** (Dep. Chemistry, Harvard Univ., Cambridge, MA, 02138, USA). Applied Physics Letters, 70(20), 2658-2660 (English) 1997. CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of Physics.

AB Bringing an **elastomeric** phase **mask** into **conformal** contact with a layer of photoresist makes it possible to perform photolithog. in the near field of the **mask.** This technique provides an especially simple method for forming features with sizes of 90-100 nm in photoresist: straight lines, curved lines, and posts, on both curved and planar surfaces. It combines exptl. convenience, new optical characteristics, and applicability to nonplanar substrates into a new approach to fabrication. Nanowire polarizers for visible light illustrate one application for this technique.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST photolithog **elastomeric** phase **mask**; lithog

IT **Photomasks** (lithographic **masks**)

(**elastomeric** phase **mask** for sub-100 nm
photolithog. in optical near field)
IT Polysiloxanes, uses
RL: DEV (Device component use); USES (Uses)
(**elastomeric** phase **mask** for sub-100 nm
photolithog. in optical near field)
IT Photolithography
Photoresists
(producing sub-100 nm features by near field photolithog. using
elastomeric phase **mask** in **conformal**
contact with photoresist layer)
IT 9016-00-6, Polydimethylsiloxane 31900-57-9, Polydimethylsiloxane
RL: DEV (Device component use); USES (Uses)
(**elastomeric** phase **mask** for sub-100 nm
photolithog. in optical near field)

L119 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1997:34367 Document No. 126:178907 Using microcontact printing to
generate amplitude **photomasks** on the surfaces of optical
fibers: a method for producing in-fiber gratings. Rogers, John A.;
Jackman, Rebecca J.; whitesides, George M.;
Wagener, Jefferson L.; Vengsarkar, Ashish M. (Dep. Chem., Harvard
Univ., Cambridge, MA, 02138, USA). Applied Physics Letters, 70(1),
7-9 (English) 1997. CODEN: APPLAB. ISSN: 0003-6951. Publisher:
American Institute of Physics.
AB This letter describes a method for producing in-fiber gratings that
reduces the effects of mech. and optical instabilities limiting
other methods. In this technique, opaque lines formed on the
outside of the fiber using a procedure known as microcontact
printing, serve as an amplitude **photomask** for exposure to
UV light. Long-period fiber optic attenuators formed by this
technique demonstrate its advantages.
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 73
ST fiber optical grating **photomask** microcontact printing;
copper **photomask** microcontact printing optical fiber;
palladium colloid microcontact printing **photomask** fiber;
siloxane dimethyl polymer microcontact printing **photomask**;
diffraction grating fiber **photomask** microcontact printing
IT **Photomasks** (lithographic **masks**)
(UV; using microcontact printing to generate amplitude
photomasks on surfaces of optical fibers as method for
producing in-fiber gratings)
IT Polysiloxanes, uses
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(di-Me; using microcontact printing to generate amplitude
photomasks on surfaces of optical fibers as method for
producing in-fiber gratings)
IT Printing (impact)
(micro-contact; using microcontact printing to generate amplitude

photomasks on surfaces of optical fibers as method for
producing in-fiber gratings)

IT Colloids
(palladium; using microcontact printing to generate amplitude **photomasks** on surfaces of optical fibers as method for producing in-fiber gratings)

IT Diffraction gratings
Optical fibers
(using microcontact printing to generate amplitude **photomasks** on surfaces of optical fibers as method for producing in-fiber gratings)

IT 7440-05-3, Palladium, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(colloid; using microcontact printing to generate amplitude **photomasks** on surfaces of optical fibers as method for producing in-fiber gratings)

IT 7440-50-8, Copper, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(using microcontact printing to generate amplitude **photomasks** on surfaces of optical fibers as method for producing in-fiber gratings)

IT 9016-00-6, Polydimethylsiloxane 31900-57-9, Polydimethylsiloxane
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(using microcontact printing to generate amplitude **photomasks** on surfaces of optical fibers as method for producing in-fiber gratings)

L119 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1968:32677 Document No. 68:32677 Chemical milling of aluminum alloys. Stiffler, Gerald L.; Tershin, John A. (Boeing Co.). U.S. US 3356550 19671205, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 19640316.

AB This process as described in U.S. 2,739,047 is improved for application to Al-base alloys containing Cu and Zn, such as Number 2219-T37, by using the sequestering **agents** Na2S or NaCN in a NaOH solution to prevent pitting because of too rapid etching of the Cu or Zn compds. in the alloy structure. Na2S removes such compds. as insol. precipitate, while NaCN dissolves them. Al alloy sheets to be chemical milled or etched at selected areas are vapor-degreased, cleaned by any standard alkali cleaner, **masked** with an **elastomeric** etch-proof film such as a vinyl compound on areas to remain **thick**, and submerged in an aqueous solution containing NaOH 20-30, Na2S 15-25, Al 5-15, tributyl phosphate 0.1, and wetting **agent** such as sulfonated castor oil, Na xylenesulfonate, or triethanolamine 0.1 oz./gal., at 190°F., to remove metal at 0.001 in. depth/min. until 50-80% of the desired depth has been reached. The sheet is then rinsed, cleaned, and measured to estimate the etching time required for finishing to the desired **thinness**. The etch is completed in a slower-acting solution

containing NaOH 10-21, NaCN 6-20, and Al 3-15 oz./gal. at 190°F. This leaves an etched surface having a uniform texture similar to that left by mech. milling, without bumps or nodules. **Dimensional** accuracy within 0.002 in. can be attained, with no limitation as to intricacies of **conformation**, or number of parts treated at the same time.

INCL 520167

CC 56 (Nonferrous Metals and Alloys)

=> => d l120 1-78 cbib abs hitstr hitind

L120 ANSWER 1 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

2005:592138 Document No. 143:103362 Gecko-like fasteners for a **surface** having a **polymeric** film or a fibrous web of disposable articles. Lindsay, Jeffrey Dean; Chen, Fung-jou; Yu, Lisha; Efremova, Nadezhda (USA). U.S. Pat. Appl. Publ. US 2005148984 A1 20050707, 26 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-747923 20031229.

AB A disposable absorbent article has a nanofabricated attachment means having adhesive hairs disposed on a substrate wherein the hairs are effective to adhesively engage an opposing **surface** having a **polymeric** film or a fibrous web. In another embodiment, the absorbent article has a gecko-like fastener including a substrate and a plurality of adhesive hairs arising from the substrate having a base section, midsection, and **top** section, a height of about 0.5 μ to about 8 **mm**, and a diameter greater than about 0.05 μ. Thus, a hypothetical example using **surface**-initiated **polymerization** for producing synthetic setae was illustrated. A self-assembled monolayer of 4'-nitro-1,1-biphenyl-4-thiol was **exposed** to e-beam irradiation using stencil **mask** to **protect** rest of the **surface**, resulting in intralayer crosslinking and conversion of the terminal nitro groups into amino groups, thus forming 4'-amino-1,1-biphenyl-4-thiol (cAMBT). CAMBT served as an asym. azo initiator for **surface** initiated radical **polymerization** of a vinyl monomer (styrene) initiated by heating. The radical **polymerization** resulted in a **polymer** layer formation at the irradiated areas only. Due to decomposition of **surface** bound, asym. phenylazoalkyl initiator, **polymerization** was only initiated on the **surface** and not in the bulk.

IC ICM A61F013-15

INCL 604387000

CC 63-7 (Pharmaceuticals)
Section cross-reference(s): 37, 39

ST **polymer** film fiber adhesive gecko like fastener disposable article

IT Medical goods
(adhesives; gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)

IT Nanotubes
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(carbon fibers; gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)
IT Nanotubes
(carbon; gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)
IT Oxides (inorganic), **biological** studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(coatings; gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)
IT Adhesives
Coating materials
Disposable diapers
Microspheres
Young's modulus
(gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)
IT Crown ethers
Polymers, biological studies
Silsesquioxanes
Synthetic **polymeric** fibers, **biological** studies
Zeolites (synthetic), **biological** studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)
IT Adhesives
(medical; gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)
IT Carbon fibers, **biological** studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nanotube; gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)
IT Vinyl compounds, **biological** studies
RL: DEV (Device component use); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**polymers**; gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)
IT **Polymerization**

Polymerization catalysts
(radical; gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)

IT 521757-23-3P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)

IT 9003-53-6P, Polystyrene
RL: DEV (Device component use); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)

IT 12619-70-4D, Cyclodextrin, derivs.
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)

IT 3696-36-4 221666-24-6, 4'-Nitro-1,1'-biphenyl-4-thiol
RL: RCT (Reactant); RACT (Reactant or reagent)
(gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)

IT 29598-73-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)

IT 13463-67-7, Titanium dioxide, **biological** studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(treated with UV absorbing material, coatings; gecko-like fasteners with adhesive hairs disposed on **surface** having **polymeric** film or fibrous web of disposable articles)

L120 ANSWER 2 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:302556 Document No. 142:363933 Liquid **agents** for formation of **protective** layers of **exposure** **masks** and **exposure masks** showing electric conductivity. Toyota, Yuji; Nakagawa, Kunihiro (Mitsubishi Paper Mills, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005092066 A2 20050407, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-328171 20030919.

AB The **mask** comprises a glass substrate and is equipped with a conductive **protective** layer on the image-forming layer

side. Liquid **agents**, for formation of the
protective layers, containing conductive polythiophene
polymers are also claimed. The **masks** are elec.
conductive and show **long** service life. The image-forming
layers of the **masks** are obtained by conventional photog.
or by diffusion-transfer reversal process.

IC ICM G03F001-14
ICS H01L021-027

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

ST **exposure mask** conductive polythiophene **protective** coating

IT Photography
(diffusion-transfer, **mask** image formation by; **exposure masks** with conductive polythiophene **polymer protective** layers)

IT Coating materials
Resists
(**exposure masks** with conductive polythiophene **polymer protective** layers)

IT Photography
(**mask** image formation by; **exposure masks** with conductive polythiophene **polymer protective** layers)

IT Glass substrates
(**masks**; **exposure masks** with conductive polythiophene **polymer protective** layers)

IT Conducting **polymers**
(polythiophenes, **protective** coating; **exposure masks** with conductive polythiophene **polymer protective** layers)

IT 7440-22-4P, Silver, preparation
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**mask** images; **exposure masks** with conductive polythiophene **polymer protective** layers)

IT 849207-06-3, Denatron 4002
RL: TEM (Technical or engineered material use); USES (Uses)
(**protective** layer from; **exposure masks** with conductive polythiophene **polymer protective** layers)

L120 ANSWER 3 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:208499 Document No. 142:430680 Photochemical Modification and Patterning of **Polymer Surfaces** by **Surface** Adsorption of Photoactive **Block Copolymers.** Pan, F.; Wang, P.; Lee, K.; Wu, A.; Turro, N. J.; Koberstein, J. T. (Departments of Chemistry and Chemical Engineering, Columbia University, New York, NY, 10027, USA).

Langmuir, 21(8), 3605-3612 (English) 2005. CODEN: LANGD5. ISSN: 0743-7463. Publisher: American Chemical Society.

AB We report a simple photolithog. approach for the creation and micropatterning of chemical functionality on **polymer surfaces** by use of **surface**-active **block copolymers** that contain **protected** photoactive functional groups. The **block copolymers** self-assemble at the substrate-air interface to generate a **surface** that is initially hydrophobic with low **surface** tension but that can be rendered hydrophilic and functional by photodeprotection with UV radiation. The **block copolymer** employed, poly(styrene-b-tert Bu acrylate), segregates preferentially to the **surface** of a polystyrene substrate because of the low **surface** tension of the polyacrylate **blocks.** The strong adsorption of **block copolymers** causes a bilayer structure to form presenting a photoactive polyacrylate layer at the **surface.** In the example described, the tert-Bu ester groups on the polyacrylate **blocks** are deprotected by **exposure** to UV radiation in the presence of added photoacid generators to form **surface** carboxylic acid groups. **Surface** micropatterns of carboxylic acid groups are generated by UV **exposure** through a **contact mask.** The success of **surface** chemical modification and pattern formation is demonstrated by XPS and **contact** angle measurements along with imaging by optical and fluorescence microscopy methods. The resultant chemical patterned **surfaces** are then used to template patterns of various **biomols.** by means of selective adsorption, covalent bonding and mol. recognition mechanisms. The **surface** modification/patterning concept can be applied to virtually any **polymeric** substrate because **protected** functional groups have intrinsically low **surface** tensions, rendering properly designed **block copolymers surface** active in almost all **polymeric** substrates.

CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36

ST styrene butyl acrylate **block copolymer** polystyrene **surface** adsorption patterning

IT Photolithography
(UV; photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT Coupling **agents**
(for photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT Adsorption
Contact angle
Fluorescence
Molecular recognition
Surface treatment

Thickness
UV radiation
(photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT Albumins, processes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(serum, bovine; photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT 195305-12-5D, Bodipy FL-EDA, reaction products with deprotected tert-Bu acrylate-styrene **block copolymer**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(Bodipy FL-EDA; photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT 6066-82-6, N-Hydroxy succinimide 25952-53-8, 1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(coupling **agent**; for photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT 66003-78-9, Triphenylsulfonium triflate
RL: RGT (Reagent); RACT (Reactant or reagent)
(for photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT 3326-32-7, Fluorescein 5 isothiocyanate 9013-20-1, Streptavidin 121207-31-6D, Bodipy 493/503, reaction products with deprotected tert-Bu acrylate-styrene **block copolymer**
216299-38-6D, reaction products with deprotected tert-Bu acrylate-styrene **block copolymer** 247144-99-6, Alexa 488
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT 127972-36-5, tert-Butyl acrylate-styrene **block copolymer**
RL: PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT 127972-36-5DP, tert-Butyl acrylate-styrene **block copolymer**, deprotected, reaction products with **biomols.**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or

engineered material use); PREP (Preparation); USES (Uses)
(photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

IT 9003-53-6, Polystyrene
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate; photochem. modification and patterning of **polymer surfaces** by **surface** adsorption of photoactive **block copolymers**)

L120 ANSWER 4 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:85615 Document No. 142:327274 Improved thermosensitive resistance for **surface** mounting. Wang, Jun; Hou, Liming; Yang, Zhaoguo; Pan, Ang; Li, Congwu (Wei'an Thermoelectric Material Co., Ltd., Shanghai, Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1482627 A 20040317, 16 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2002-136933 20020911.

AB The thermosensitive resistance consists of a **polymer** composite material core, a metal foil **covering** on the core, an insulating rubber film, a Cu electrodeposited layer on the both ends of the core, a Sn electrodeposited layer on the Cu , and a paste **mask** printed on the insulating film. The core is composed of 35-50 **polymer** , 45-60 C black, 1-10 C black dispersing **agent** and 1-5% other processing adjuvant. The **polymer** is polyethylene, polypropylene, poly(vinylidene difluoride), and/or polytrichloroethylene. The processing adjuvant is an antioxidant, a crosslinking promoter, and a coupling **agent.** The process comprises extruding or molding to obtain a core of 0.1-1.0 **mm thickness** and an area, 100-1,000 cm2, hot-pressing to **cover** a metal foil on both **surfaces** of the core, crosslinking under gamma ray or electron beam irradiation at 5-100 Mrad to obtain composite sheet, punching to form rectangular slot, etching to form grooves (0.1-1.0 **mm wide**), **covering** with insulating rubber film on both **surfaces** of the composite sheet, Cu electroplating, Sn electroplating or SnPb alloy electroplating, etching again, printing with paste **mask** ink to form a paste **mask** on each **surface** of the composite sheet, **exposing** to **polymerize**, developing with 0.1-10% Na_2CO_3 or K_2CO_3 solution at 10- 80° to remove the unexposed ink, crosslinking at 100-200° for 20-200 min, printing characters on the paste **mask**, and cutting. The paste **mask** ink is epoxy **resin** or acrylic **resin.**

IC ICM H01C007-02

CC 76-1 (Electric Phenomena)
Section cross-reference(s): 72, 74

ST thermosensitive resistance **surface** mounting **polymer** copper tin electroplating

IT Electrodeposition
Gamma ray
(for making **polymer** composite sheet and

electrodeposited copper and tin film having improved
thermosensitive resistance for **surface** mounting)

IT Electron beams
(irradiation; for making **polymer** composite sheet and electrodeposited copper and tin film having improved thermosensitive resistance for **surface** mounting)

IT Composites
Dielectric films
Electric resistance
(**polymer** composite and electrodeposited copper and tin film having improved thermosensitive resistance for **surface** mounting)

IT Acrylic **polymers**, uses
Alloys, uses
Epoxy **resins**, uses
Fluoropolymers, uses
Polymers, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**polymer** composite and electrodeposited copper and tin film having improved thermosensitive resistance for **surface** mounting)

IT 51-79-6, Ethyl carbamate 1025-15-6, Triallyl isocyanurate 7440-31-5, Tin, uses 7440-44-0, Carbon, uses 7440-50-8, Copper, uses 7758-98-7, Cupric sulfate, uses 9002-88-4, Polyethylene 9003-07-0, Polypropylene 11110-87-5 24937-79-9, Poly(vinylidene difluoride) 27275-39-4, Polytrichloroethylene
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**polymer** composite and electrodeposited copper and tin film having improved thermosensitive resistance for **surface** mounting)

L120 ANSWER 5 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:1094603 Method for fabricating storage electrode. Jeon, Bae Geun; You, Eui Gu (Hyundai Electronics Ind. Co., Ltd., S. Korea). Repub. Korean Kongkae Taeho Kongbo KR 2000045458 A 20000715, No pp. given (Korean). CODEN: KRXXA7. APPLICATION: KR 1998-62016 19981230.

AB PURPOSE: A method for fabricating a storage electrode is provided to increase a capacitance of a storage electrode by forming the storage electrode of a dual structure. CONSTITUTION: A method for fabricating a storage electrode comprises forming a flat film(38), a **first** conductive layer(39) and a **first** interlayer dielectric(40) on a semiconductor substrate(21). On the **first** interlayer dielectric is formed a **first** photoresist pattern for **exposing** a source/drain region(37). A storage electrode **contact** hole(42) is formed by etching the **first** interlayer dielectric(40), the **first** conductive layer(39) and the flat film(38) by use of the photoresist pattern as a **mask.** After removing the photoresist pattern, a **second** conductive layer(43) is formed on an entire **surface** so as to fill the

contact hole. A **second** interlayer dielectric(44) is formed on the **second** conductive layer. A **second** photoresist pattern is formed on the insulating layer(44) in order to **protect** a storage electrode region. The **second** conductive layer(40) is etched by use of the photoresist pattern as a **mask**, so that a **polymer** (46) is formed at sidewalls of the photoresist pattern. The **second** conductive layer(43) is etched by using the photoresist pattern and the **polymer**(46) as a **mask** , wherein the photoresist pattern is removed during etching. A groove is formed at the **second** conductive layer(43) by etching the films(40,39,44,43) by use of the **polymer** as a **mask.**

IC ICM H01L021-28

L120 ANSWER 6 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:901079 Document No. 141:386368 **Photomask** material, manufacture of **photomask**, and **photomask** with high resolution therefrom. Takayanagi, Takashi (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004302012 A2 20041028, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-93597 20030331.

AB The **photomask** material consists of a silane coupling agent-treated transparent substrate (A) having thereon a photocurable and/or heat-curable light **shield**-forming layer (B) containing fine particles having absorbance on the shorter wave side than 450 nm, a transparent photosensitive layer (C), and an oxygen-barrier layer (D). Preferably, the layer D contains (i) curable alkali-soluble resin binders, (ii) monomers or oligomers bearing ≥1 **polymerizable** unsatd. bonds, (iii) photopolymn. initiators, and (iv) the fine particles, preferably carbon black. Preferably, the layer C contains (i) curable alkali-soluble resin binders, (ii) monomers or oligomers bearing ≥1 **polymerizable** unsatd. bonds, and (iii) photopolymn. initiators. Preferably, the substrate A comprises a glass or a synthetic quartz. The **photomask** is manufactured by exposure of the layer C via the layer D to UV laser light or visible laser light, followed by alkali development and photocure and/or heat cure. Preferably, the **photomask** further contains a protective layer on the formed image.

IC ICM G03F001-08
ICS G03F007-004; G03F007-09; G03F007-11; G03F007-26; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST silane coupling agent treated substrate **photomask** material; photocurable light **shield** carbon black **photomask** material; thermosetting light **shield** carbon black **photomask** material; oxygen barrier layer **photomask** material; alkali sol acrylic **polymer** transparent photocurable **photomask**

IT Carbon black, uses
RL: TEM (Technical or engineered material use); USES (Uses)

(NIPex 35, photocurable and/or heat-curable layer, containing light-**shielding** fine particles of; **photomask** material for manufacture of **photomask** with high resolution)

IT Glass substrates
(SE 10, alkali-free, silane coupling agent-treated; **photomask** material for manufacture of **photomask** with high resolution)

IT Silanes
RL: TEM (Technical or engineered material use); USES (Uses)
(coupling agents, for substrates; **photomask** material for manufacture of **photomask** with high resolution)

IT Light **shields**
(photocurable and/or heat-curable layer, containing light-**shielding** fine particles; **photomask** material for manufacture of **photomask** with high resolution)

IT **Photomasks** (lithographic **masks**)
(**photomask** material for manufacture of **photomask** with high resolution)

IT **Polymerization** catalysts
(photopolymn., in coating layer for forming light-**shielding** layer and transparent photosensitive layer; **photomask** material for manufacture of **photomask** with high resolution)

IT Coupling agents
(silanes, for substrates; **photomask** material for manufacture of **photomask** with high resolution)

IT 65697-21-4, Benzyl methacrylate-methacrylic acid copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(binder for light-**shielding** layer; **photomask** material for manufacture of **photomask** with high resolution)

IT 90216-38-9, Allyl methacrylate-methacrylic acid copolymer
212203-57-1
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(coating for transparent photosensitive layer; **photomask** material for manufacture of **photomask** with high resolution)

IT 77641-99-7, Kayarad DPHA
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(coating layer for forming light-**shielding** layer and transparent photosensitive layer; **photomask** material for manufacture of **photomask** with high resolution)

IT 109115-61-9, Allyl methacrylate-benzyl methacrylate-methacrylic acid copolymer
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(coating layer for forming light-**shielding** layer; **photomask** material for manufacture of **photomask** with high resolution)

IT 1760-24-3, KBM 603
RL: TEM (Technical or engineered material use); USES (Uses)
(coupling agents, for substrates; **photomask** material

for manufacture of **photomask** with high resolution)
IT 777907-87-6P, Allyl methacrylate-benzyl methacrylate-Kayarad DPHA-methacrylic acid copolymer
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(cured light-**shielding** layer; **photomask** material for manufacture of **photomask** with high resolution)
IT 9003-39-8, PVP-K 30 122463-72-3, PVA 205
RL: TEM (Technical or engineered material use); USES (Uses)
(oxygen-barrier layer; **photomask** material for manufacture of **photomask** with high resolution)
IT 125051-32-3, Irgacure 784
RL: CAT (Catalyst use); USES (Uses)
(photopolymn. initiator in coating layer for forming light-**shielding** layer and transparent photosensitive layer; **photomask** material for manufacture of **photomask** with high resolution)
IT 7631-86-9, Silica, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(quartz-type, substrate, silane coupling agent-treated; **photomask** material for manufacture of **photomask** with high resolution)

L120 ANSWER 7 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:898944 Document No. 141:386366 **Photomask** material, manufacture of **photomask**, and **photomask** with high resolution therefrom. Takayanagi, Takashi (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004302017 A2 20041028, 20 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-93641 20030331.
AB The **photomask** material consists of a transparent substrate (A) having thereon a photosensitive layer (B) containing (i) alkali-soluble resin binders bearing **polymerizable** unsatd. bonds, (ii) monomers or oligomers bearing ≥1 **polymerizable** unsatd. bonds, (iii) photopolymn. initiators sensitive to wavelength region of ≥405 nm, and (iv) colorants surface-treated with **polymerizable** dispersing agents and on the other side a layer (C) containing colorants showing absorbance of exposed light used in the **photomask** fabrication and being removable with alkalis, and optionally, (D) an oxygen-barrier layer. Preferably, the **polymerizable** dispersing agents are alkali-soluble Preferably, the colorants comprise blue pigments and/or green pigments. The **photomask** is manufactured by exposure of the layer B to light of wavelength of ≥405 nm, followed by development.
IC ICM G03F001-08
ICS G03F007-004; G03F007-038; G03F007-11; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST colorant contg photosensitive layer **photomask** material; oxygen barrier layer **photomask** material; alkali sol acrylic **polymer** transparent photocurable **photomask**

IT Soda-lime glasses
RL: TEM (Technical or engineered material use); USES (Uses)
(alkali-free, substrate; **photomask** material for manufacture of **photomask** with high resolution)
IT Glass substrates
Photomasks (lithographic **masks**)
(**photomask** material for manufacture of **photomask** with high resolution)
IT **Polymerization** catalysts
(photopolymn., colorant-containing photosensitive layer component; **photomask** material for manufacture of **photomask** with high resolution)
IT 25086-15-1, Methacrylic acid-methyl methacrylate copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(alkali-soluble binder for colorant layer; **photomask** material for manufacture of **photomask** with high resolution)
IT 90216-38-9, Allyl methacrylate-methacrylic acid copolymer
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(coating for transparent photosensitive layer; **photomask** material for manufacture of **photomask** with high resolution)
IT 58464-09-8 64225-58-7 778595-51-0 778595-52-1
RL: TEM (Technical or engineered material use); USES (Uses)
(colorant layer; **photomask** material for manufacture of **photomask** with high resolution)
IT 77641-99-7, Kayarad DPHA 109115-61-9, Allyl methacrylate-benzyl methacrylate-methacrylic acid copolymer 212203-57-1
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(colorant-containing photosensitive layer component; **photomask** material for manufacture of **photomask** with high resolution)
IT 777907-87-6P, Allyl methacrylate-benzyl methacrylate-Kayarad DPHA-methacrylic acid copolymer
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(cured light-**shielding** layer; **photomask** material for manufacture of **photomask** with high resolution)
IT 9003-39-8, PVP-K 30 122463-72-3, PVA 205
RL: TEM (Technical or engineered material use); USES (Uses)
(oxygen-barrier layer; **photomask** material for manufacture of **photomask** with high resolution)
IT 125051-32-3, Irgacure 784
RL: CAT (Catalyst use); USES (Uses)
(photopolymn. initiator, colorant-containing photosensitive layer component; **photomask** material for manufacture of **photomask** with high resolution)
IT 1328-53-6, C.I. Pigment Green 7 30125-47-4, C.I. Pigment Yellow 138
RL: TEM (Technical or engineered material use); USES (Uses)
(photosensitive layer component; **photomask** material for manufacture of **photomask** with high resolution)

L120 ANSWER 8 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:677055 Document No. 141:332817 Influence of the initiation rate on the **polymerization** kinetics of hydroxy ethyl methacrylate (HEMA) filled with HEMA-grafted silica preformed nanoparticles. Kaddami, H.; Pascault, J. P.; Gerard, J. F. (Laboratoire Materiaux Macromoleculaires/Ingenierie des Materiaux UMR-CNRS 5627, INSA Lyon, Villeurbanne, 69621, Fr.). Polymer Engineering and Science, 44(7), 1231-1239 (English) 2004. CODEN: PYESAZ. ISSN: 0032-3888. Publisher: John Wiley & Sons, Inc..

AB The **polymerization** kinetics of HEMA-grafted silica nanoparticles and HEMA monomer mixts. was studied under thermal and UV cures. These two kinds of cure, which correspond to different initiation rates, lead to opposite effects on the **polymerization** kinetics as methacrylate-grafted silica nanoparticles are introduced. When the **polymerization** was done under UV, i.e., in the case of a high initiation rate, the introduction of grafted silica nanoparticles increases the **polymerization** rate. On the contrary, when the **polymerization** rate is thermally activated, an opposite effect is observed after the introduction of the grafted silica nanoparticles. Two phenomena having opposite effects on the **polymerization** kinetics are involved: (i) the high functionality of silica nanoparticles leads to an increase of the **polymerization** rate of the reactive system; (ii) the methacrylate groups at the silica surface have a lower reactivity, due to their reduced mobility, and are responsible for the formation of **shielded** radicals. The large difference in the initiation rates between the two types of **polymerization** gives evidence of these opposite effects: a high radical concentration leads to a high UV **polymerization** rate, whereas for the thermal **polymerization**, **shielded** radicals still exist but cannot completely **mask** the presence of the effect of high-functionality species, i.e., grafted silica.

CC 37-3 (Plastics Manufacture and Processing)

ST hydroxyethyl methacrylate **polymn** kinetics silica grafted nanoparticle influence

IT **Polymerization**
 Polymerization kinetics
 (photopolymn., UV-activated; of hydroxyethyl methacrylate in the presence of HEMA-grafted silica nanoparticles)

IT Nanocomposites
 Nanoparticles
 (**polymerization** kinetics of hydroxyethyl methacrylate in the presence of HEMA-grafted silica nanoparticles)

IT **Polymerization**
 Polymerization kinetics
 (thermal; of hydroxyethyl methacrylate in the presence of HEMA-grafted silica nanoparticles)

IT 666753-37-3, 2-Hydroxyethyl methacrylate-silica graft copolymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (**polymerization** kinetics of hydroxyethyl methacrylate in the presence of HEMA-grafted silica nanoparticles)

IT 25249-16-5P, 2-Hydroxyethyl methacrylate homopolymer
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymerization** kinetics of hydroxyethyl methacrylate in the presence of HEMA-grafted silica nanoparticles)

L120 ANSWER 9 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:628745 Document No. 141:175072 Preparation of **resin** plates with patterned **surface** for **long**-life concrete molding frames. Tsuchiya, Hiroyuki; Yamada, Hiroshi (Asahi Kasei Chemical Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2004216735 A2 20040805, 19 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-7441 20030115.

AB Layers of photoimaging **resin** compns. are formed on sheet supports, **exposed** to high energy beams of parallel light ratio ≥15%, and developed to form **resin** plates with uneven pattern **surface.** Jigs correcting parallel light ratio may be arranged between light sources and **masks.** The **resin** compns. may comprise **polymers** of Mn ≥1000 and ≤300,000 100, reactive monomers of Mn <1000 5-200, fillers 0-100 parts, and **polymerization** catalysts 0.1-10% (to the total weight of A and B). Thus, polyoxyethylene-polyoxypropylene **block copolymer** (Mn 2500) was reacted with TDI and then with 2-hydroxypropyl methacrylate to give an unsatd. polyurethane, 65 parts of which was blended with diethylene glycol 2-ethylhexyl ether acrylate 13, diethylene glycol Bu ether methacrylate 20, TMPMA trimethylolpropane trimethacrylate 2, 2,2-dimethoxy-2-phenylacetophenone 0.4, and 2,6-di-tert-butylhydroquinone 0.05 part to give a composition Then, the composition was applied on a transparent film at 7.0-**mm thickness**, **exposed** to UV with parallel light ratio 22.5%, developed with weak alkalis, and completely cured by in-water **exposure** to give a plate having profile pattern.

IC ICM B28B007-16
ICS B28B001-14; E02D027-01; E04G009-05; G03F007-00; G03F007-004; G03F007-11; G03F007-20

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 58, 74

ST concrete molding frame photoimaging **resin** compn; parallel light **exposure** photoimaging **resin** plate; urethane acrylate photoimaging **resin** patterned plate

IT Polyurethanes, uses
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic-polyoxyalkylene-; preparation of **resin** plates with patterned **surface** by photolithog. for **long**-life concrete molding frames)

IT Concrete
(molding of; preparation of **resin** plates with patterned **surface** by photolithog. for **long**-life concrete molding frames)

IT Optical instruments

(parallel-light-ratio **modifiers**; preparation of **resin** plates with patterned **surface** by photolithog. for **long**-life concrete molding frames)

IT Photoimaging materials
(photopolymerizable; preparation of **resin** plates with patterned **surface** by photolithog. for **long** -life concrete molding frames)

IT Molds (forms)
Photolithography
(preparation of **resin** plates with patterned **surface** by photolithog. for **long**-life concrete molding frames)

IT 24650-42-8, 2,2-Dimethoxy-2-phenylacetophenone
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(photopolymn. initiators; preparation of **resin** plates with patterned **surface** by photolithog. for **long** -life concrete molding frames)

IT 732286-53-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of **resin** plates with patterned **surface** by photolithog. for **long**-life concrete molding frames)

L120 ANSWER 10 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:432713 Document No. 141:387021 Deep level self-aligned **contact** process. Hung, Lian-Fa; Yang, Jian-Luen (United Microelectronics Corp., Taiwan). Taiwan TW 527691 B 20030411, 8 pp. (Chinese). CODEN: TWXXA5. APPLICATION: TW 2001-90100062 20010103.

AB A deep level self-aligned **contact** process comprises the following steps. **First**, a semiconductor structure that has a substrate and a **contact** point is provided. A **1st** dielec. layer is formed on the substrate and then a **second** dielec. layer is form on the **1st** dielec. layer. A bit-line structure that has an insulated layer **covering** one sidewall of a conductive layer and a cap layer locates in the **2nd** dielec. layer. **Second**, a pattern transfer PR that defines a **contact** area on the **2nd** dielec. layer is formed. The pattern transfer PR was used as a **mask** to etch the **1st** and **2nd** dielec. layers by a **1st** etching process that uses high C-F ratio mixed gas. This etch process can deposit more **polymer** on the sidewalls of the bit-line and the corner **surfaces** of the cap layer. Third, the **1st** and **2nd** dielec. layers are further etched by a **2nd** etching process mixed gas till **exposing** the **contact** point sited substrate. When encountering the deep level self-aligned **contact** process, this method can increase the **polymer** deposited on the sidewalls and corner **surfaces** to prevent **contact** hole short to conductive line and also can remove the bottom **polymer** to prevent etching stop that induces **contact** open. It also

can tolerate little alignment error of micro-lithog. process to reduce the process rework or device failure and then reduce the cost.
IC ICM H01L021-768
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 48
ST self aligned **contact** semiconductor device fabrication
IT Electric **contacts**
Semiconductor device fabrication
(deep level self-aligned **contact** process for semiconductor device fabrication)
IT Dielectric films
Metal lines
Photolithography
(deep level self-aligned **contact** process for semiconductor device fabrication using)
IT Fluoropolymers, uses
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(deep level self-aligned **contact** process for semiconductor device fabrication using)
IT Films
(elec. conductive; deep level self-aligned **contact** process for semiconductor device fabrication using)
IT Electric conductors
(films; deep level self-aligned **contact** process for semiconductor device fabrication using)
IT Hydrocarbons, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(fluoro, etching gas; deep level self-aligned **contact** process for semiconductor device fabrication using)
IT Etching
Polymerization
(plasma; deep level self-aligned **contact** process for semiconductor device fabrication using)

L120 ANSWER 11 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:95566 Document No. 140:154116 Formation of embossed **surface** on film, optical film and diffuse reflector plate made of the film, and manufacture of the reflector plate for liquid crystal display device. Kizawa, Keiko; Tai, Seiji; Tsuruoka, Yasuo; Iwamuro, Mitsunori (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004034325 A2 20040205, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-190510 20020628.
AB The embossed **surface** is formed by the process involving (a) forming of a neg.-working radiation resist **resin** composition layer containing ≥1 **polymerizable** binder **resin**, ≥1 **polymerizable** monomer or oligomer, a **polymerization** initiator generating free radical under radiation irradiation, and 0.1-30% (based on the mixed amount of the

polymer and the monomer or oligomer) of a coupling **agent**, (b) irradiating of radiation through a patternwise **mask** for ≥1 time, and (c) heating without etching. Alternatively the pattern is drawn directly by scanning of radiation. The optical film is that obtained by the process. The diffuse reflector plate is that made of the optical film whose **surface** is totally or partially **covered** with a reflecting film or a semipermeable reflecting film. A transfer mold obtained by the process and a transfer base film whose **surface** is embossed by pressing of the transfer mold are also claimed. The transfer base film is used as a temporary substrate for a **thin** transfer film having an adhesive layer on the **exposed side** optionally associated with a (semipermeable) reflecting film sandwiched between the the film and the temporary substrate. The diffuse reflector film is manufactured by transfer of the embossed **surface** shape from the transfer film on a substrate. The diffuse reflector film is used in reflective liquid crystal display device.

IC ICM B32B007-02
ICS B05D005-06; C08F291-00; G02B005-02; G02B005-08; G02F001-1335

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 74

ST plastic film **surface** embossing radiation resist; neg working radiation resist embossed **surface**; optical film **surface** embossed **surface**; transfer film **surface** embossed **surface**; diffuse reflecting film embossed **surface**; liq crystal display device diffuse reflector

IT Optical reflectors
(diffuse; formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument)

IT Optical instruments
(diffusers, reflectors; formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument)

IT Liquid crystal displays
(formation of embossed **surface** on neg.-working radiation resist plastic film for diffuse reflector in)

IT Coupling **agents**
Heating
(in formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument)

IT Resists
(radiation-sensitive; formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument)

IT Molding of plastics and rubbers
(transfer; formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument obtained by)

IT 2530-85-0, γ-Methacryloxypropyltrimethoxysilane

RL: NUU (Other use, unclassified); USES (Uses)
(coupling **agent**; formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument)

IT 38637-59-1P, Butyl acrylate-glycidyl methacrylate-methacrylic acid-styrene **copolymer**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument)

IT 3524-68-3, Pentaerythritol triacrylate
RL: TEM (Technical or engineered material use); USES (Uses)
(formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument)

IT 25085-41-0P, Acrylic acid-butyl acrylate-vinyl acetate **copolymer** 337466-45-2P, Acrylic acid-hexanediol acrylate-vinyl acetate **copolymer**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument made of)

IT 90-93-7 583-39-1, 2-Mercaptobenzimidazole 6143-80-2, 2-(o-Chlorophenyl)-4,5-diphenylimidazole dimer
RL: CAT (Catalyst use); USES (Uses)
(photopolymn. initiator; formation of embossed **surface** on neg.-working radiation resist plastic film for optical instrument)

L120 ANSWER 12 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

2004:80367 Document No. 140:112256 **Polymer** composites with inorganics and methods for making and using same. Koloski, Timothy S.; Vargo, Terrence G. (USA). U.S. Pat. Appl. Publ. US 2004019143 A1 20040129, 48 pp., Cont.-in-part of U.S. Ser. No. 532,993. (English). CODEN: USXXCO. APPLICATION: US 2003-412616 20030412. PRIORITY: US 1997-PV39258 19970226; US 1997-833290 19970404; US 1997-955901 19971022; US 1997-997012 19971223; US 2000-2000/532993 20000322; US 2000-2000/533894 20000322.

AB Composites which include a **polymer** matrix having natural free volume therein and an inorg. material disposed in the natural free volume of the **polymer** matrix are disclosed. In addition, methods for making a composite are described. A **polymer** matrix having free volume therein is provided. The free volume is evacuated, and inorg. mols. are infused into the evacuated free volume of the **polymer** matrix. The inorg. mols. can then be **polymerized** under conditions effective to cause the **polymerized** inorg. or organic mols. to assemble into nanoparticles or other types of macromol. networks. Alternatively, where the **polymer** matrix contains a functionality, the inorg. or organic mols. can be treated under conditions effective to cause the inorg. or organic mols. to interact with the **polymer** matrix's functionality. Use of the disclosed composites as photoradiation **shields** and filters, electromagnetic radiation

shields and filters, antistatic layers, heterogeneous catalysts, conducting electrodes, materials having flame and heat retardant properties, components in the construction of electrolytic cells, fuel cells, and optoelectronic devices, and antifouling coatings is also described.

IC ICM C08K003-10
INCL 524434000
CC 37-6 (Plastics Manufacture and Processing)
ST macromol inorg composite **polymer**
IT Optical filters
(UV; **polymer** composites with inorgs. and methods for making and using same)
IT Antifouling agents
Antistatic materials
Electric conductors
Electromagnetic **shields**
Fuel cell separators
Nanoparticles
Photomasks (lithographic **masks**)
(**polymer** composites with inorgs. and methods for making and using same)
IT Fluoropolymers, uses
Polyamides, uses
Polycarbonates, uses
Polyesters, uses
Polyimides, uses
RL: CAT (Catalyst use); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(**polymer** composites with inorgs. and methods for making and using same)
IT Reinforced plastics
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(**polymer** composites with inorgs. and methods for making and using same)
IT 1309-37-1P, Iron oxide Fe2O3, preparation 1314-35-8P, Tungsten oxide (WO3), preparation 1314-62-1P, Vanadium oxide (V2O5), preparation 13463-67-7P, Titania TiO2, preparation
RL: CAT (Catalyst use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**polymer** composites with inorgs. and methods for making and using same)
IT 9002-89-5, Polyvinyl alcohol 25038-59-9, Polyethyleneterephthalate, uses 25067-11-2, Hexafluoropropylene-tetrafluoroethylene copolymer
RL: CAT (Catalyst use); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(**polymer** composites with inorgs. and methods for making and using same)
IT 50-00-0P, Formaldehyde, preparation 64-18-6P, Formic acid, preparation 85-44-9P, Phthalic anhydride 7446-11-9P, Sulfur trioxide, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)
(**polymer** composites with inorgs. and methods for making and using same)

IT 1314-61-0P, Tantalum oxide 7440-05-3P, Palladium, preparation 7440-22-4P, Silver, preparation 116551-27-0P, Silicon oxide SiOx
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**polymer** composites with inorgs. and methods for making and using same)

IT 9002-84-0, PTFE 9003-07-0, Polypropylene 25101-45-5, ECTFE
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(**polymer** composites with inorgs. and methods for making and using same)

IT 67-56-1, Methanol, reactions 95-47-6, o-Xylene, reactions 7446-09-5, Sulfur dioxide, reactions 7550-45-0, Titanium chloride (TiCl4) (T-4)-, reactions 7727-18-6, Vanadium oxychloride 7783-71-3, Tantalum fluoride (TaF5) 10026-04-7 13463-40-6 14040-11-0 23302-12-7 76122-00-4, (Hexafluoroacetylacetonato)silver
RL: RCT (Reactant); RACT (Reactant or reagent)
(**polymer** composites with inorgs. and methods for making and using same)

L120 ANSWER 13 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

2003:912525 Document No. 139:361193 Programmable **mask** and method for fabricating biomolecule array using the same. Jung, Moon Youn; Yang, Hae Sik; Jun, Chi Hoon; Kim, Yun Tae; Kim, Young Shin; Shin, Dong Ho (S. Korea). U.S. Pat. Appl. Publ. US 2003214611 A1 20031120, 13 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-246593 20020918. PRIORITY: KR 2002-26698 20020515.

AB A programmable **mask** used in a photolithog. process for fabricating a biomol. array and a method for fabricating a biomol. array using the same are disclosed. Particularly, a TFT-LCD type programmable **mask** for selectively transmitting incident light in accordance with an elec. signal applied thereto and a method for fabricating a biomol. array using the same are provided. The UV light is selectively illuminated to a sample substrate so that the biomol. array having high d. can be fabricated.

IC ICM G02F001-13

INCL 349004000

CC 9-1 (Biochemical Methods)
Section cross-reference(s): 3

ST programmable **mask** fabricating biomol array

IT Electric circuits
(Driving; programmable **mask** and method for fabricating biomol. array using the same)

IT Liquid crystals
(Guest-Host; programmable **mask** and method for fabricating biomol. array using the same)

IT Crystals
(Inorg.; programmable **mask** and method for fabricating

biomol. array using the same)
IT Light
(Nonpolarized; programmable **mask** and method for fabricating biomol. array using the same)
IT Reaction
(Optical; programmable **mask** and method for fabricating biomol. array using the same)
IT Films
(Orientation; programmable **mask** and method for fabricating biomol. array using the same)
IT **Photomasks** (lithographic **masks**)
(Programmable; programmable **mask** and method for fabricating biomol. array using the same)
IT Films
(**Shielding**; programmable **mask** and method for fabricating biomol. array using the same)
IT Coating process
(Thermal; programmable **mask** and method for fabricating biomol. array using the same)
IT Mirrors
(dielec.; programmable **mask** and method for fabricating biomol. array using the same)
IT Biochemical compounds
Birefringence
Density
Electric potential
Electrodes
Electronic device fabrication
Films
Illumination
Ion beams
Light
Liquid crystal displays
Liquid crystals
Optical transmission
Photolithography
Polarizers
Samples
Surface
Thin film transistors
UV radiation
Wavelength
(programmable **mask** and method for fabricating biomol. array using the same)
IT **Polymers**, uses
Tourmaline-group minerals
RL: DEV (Device component use); USES (Uses)
(programmable **mask** and method for fabricating biomol. array using the same)
IT Electrodes
(transparent; programmable **mask** and method for fabricating biomol. array using the same)

IT 7440-44-0, Diamond-like-carbon, uses
RL: DEV (Device component use); USES (Uses)
(diamond-like; programmable **mask** and method for fabricating biomol. array using the same)
IT 7440-21-3, Polysilicon, uses 7631-86-9, Silicon oxide, uses 9002-89-5, Polyvinyl alcohol 13397-26-7, Calcite, uses 14808-60-7, Quartz, uses
RL: DEV (Device component use); USES (Uses)
(programmable **mask** and method for fabricating biomol. array using the same)

L120 ANSWER 14 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:845636 Document No. 140:366798 Method for manufacturing dual damascene structure on a substrate. Du, You-Luen; Liou, Yuan-Hung (Taiwan Semiconductor Manufacturing Co., Ltd., Taiwan). Taiwan TW 417243 B 20010101, 6 pp. (Chinese). CODEN: TWXXA5. APPLICATION: TW 1999-88111871 19990713.
AB The present invention discloses a method for manufacturing dual damascene structure on a substrate. **First**, there is provided a semiconductor substrate having a **1st** dielec. layer, in which an etching stop layer is provided on the dielec. layer, and a **2nd** dielec. layer is provided on the etching stop layer. Next, the **2nd** dielec. layer is etched until reaching the etch stop layer, so as to form a **1st** opening and a **2nd** opening in the **2nd** dielec. layer, in which the **dimension** of the **2nd** opening is larger than that of the **1st** opening. Further, there is formed a **polymer** layer on the **surface** of the **2nd** dielec. layer and the etching stop layer, in which the **polymer** layers able to **cover** the **1st** opening and fill into a part of the **2nd** opening, thereby defining a 3rd opening in the **2nd** opening. Then, the **polymer** layer located on the spacer of the **2nd** opening is used as a **mask** to etch the **polymer** layer, etching stop layer and **1st** dielec. layer at the **bottom** of the 3rd opening, so as to **expose** the upper **surface** of the semiconductor substrate. After removing the **polymer** layer, there is formed a conductive layer to be filled in the **1st**, **2nd**, and 3rd opening.
IC ICM H01L021-768
CC 76-3 (Electric Phenomena)

L120 ANSWER 15 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:653556 Document No. 139:188305 Photolithographic patterning of **polymer** film on semiconductor substrate. Hirayama, Sadayuki; Mikawa, Masato (Asahi Kasei Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2003234283 A2 20030822, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-32808 20020208.
AB A neg.-working photosensitive polyimide precursor or polybenzoxazole precursor is applied on a semiconductor substrate, dried, UV-irradiated through a **photomask** having

light-transmitting parts and light-**shielding** parts,
developed by a liquid for removal of noncured portions, and heated at 250° to give a pattern. The **photomask** has border parts between th light-transmitting parts and the light-**shielding** parts wherein light transmittance of the border parts is between the values of the transmitting parts and the shieding parts. The **polymer** pattern having inclination angle of the side walls is ≤60°.

IC ICM H01L021-027
ICS G03F001-08; G03F007-037; G03F007-038; G03F007-20; G03F007-40

CC 74-4 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 76

ST photolithog patterning **polymer** film **photomask** pattern; polyimide polybenzoxazole film pattern semiconductor substrate; neg working photosensitive polyimide polybenzoxazole precursor

IT Photolithography
Photomasks (lithographic **masks**)
Semiconductor device fabrication
(photolithog. patterning of polyimide or polybenzoxazole film on semiconductor substrate)

L120 ANSWER 16 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:595627 Document No. 140:78373 Etching kinetics of swift heavy ion irradiated silicone rubber with insoluble **additives** or reaction products. Fink, D.; Muller, M.; Petrov, A.; Farenzena, L.; Behar, M.; Papaleo, R. P. (Hahn-Meitner-Institut Berlin, Berlin, D-14109, Germany). Nuclear Instruments & Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms, 209, 310-315 (English) 2003. CODEN: NIMBEU. ISSN: 0168-583X. Publisher: Elsevier Science B.V..

AB It is normally understood as a basic precondition of the etching of swift heavy ion tracks in **polymers** that both the **additives** and etching products are soluble in the etchant. If this is not given, the **polymer surface** may be gradually **blocked** by the deposition of the insol. material that acts as a diffusion barrier for the penetration of fresh etchant into the tracks, and therefore the effective track etching speed will gradually be reduced. The etching kinetics is developed for that case, and the theory is compared with **first** exptl. findings. For that purpose we have taken com. silicone rubber foils as test materials, that were irradiated with GeV heavy ions through a **mask** at a fluence that corresponds to the onset of track overlapping. After etching with NaOH, the corresponding etching speed was recorded via the reduction of the foil **thickness.** The etching speed is seen to decrease with **exposure** time, in parallel to the development of an insol. **surface** layer. It is discussed how to prevent that **surface blocking**, to maintain a high etching speed.

CC 39-15 (Synthetic Elastomers and Natural Rubber)

Section cross-reference(s): 74
IT Etching kinetics
(etching kinetics of swift heavy ion irradiated silicone rubber containing insol. **additives** or reaction products)
IT Ionizing radiation
(heavy metal ion; etching kinetics of swift heavy ion irradiated silicone rubber containing insol. **additives** or reaction products)
IT **Thickness**
(of etched swift heavy ion irradiated silicone rubber containing insol. **additives** or reaction products)
IT Silicone rubber, properties
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(polysiloxanes; etching kinetics of swift heavy ion irradiated silicone rubber containing insol. **additives** or reaction products)
IT **Polymer** morphology
(**surface**, and fracture **surface**; of etched swift heavy ion irradiated silicone rubber containing insol. **additives** or reaction products)
IT 31900-57-9, Dimethylsilanediol **homopolymer**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(assumed monomers; etching kinetics of swift heavy ion irradiated silicone rubber containing insol. **additives** or reaction products)
IT 9016-00-6, Poly(dimethylsiloxane),sru
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(etching kinetics of swift heavy ion irradiated silicone rubber containing insol. **additives** or reaction products)

L120 ANSWER 17 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:532033 Document No. 139:108427 Light-emitting devices containing a multilayer insulating film formed between a TFT and the light-emitting element, and method of manufacturing the devices. Murakami, Satoshi; Takayama, Toru; Akimoto, Kengo (Japan). U.S. Pat. Appl. Publ. US 2003127651 A1 20030710, 25 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-329953 20021227. PRIORITY: JP 2001-398624 20011227.
AB Light-emitting devices are described which comprise a **thin** film transistor formed on an insulating **surface**; a **first** insulating film comprising an inorg. material formed over the **thin** film transistor; a **second** insulating film comprising an organic material formed over the **first** insulating film; a **contact** hole formed in the **first** insulating film and the **second** insulating film; a third insulating film comprising an inorg. material formed over the **second** insulating film; a light-emitting element comprising a **first** electrode, an organic compound layer, and a **second** electrode formed over the

third insulating film; and a wire formed in the **contact**
hole, where the wire extends over a part of the **second**
insulating film and a part of the third insulating film and the
thin film transistor is elec. connected to the **first**
electrode through the wire. Methods of manufacturing the light-emitting
devices are discussed which entail forming a **thin** film
transistor on an insulating **surface**; forming a
first insulating film comprising an inorg. material over the
thin film transistor; forming a **second** insulating
film comprising an organic material over the **first** insulating
film by application; forming a third insulating film comprising an
inorg. material over the **second** insulating film by
sputtering; forming a conducting film over the third insulating
film, the conductive film serving as a **first** electrode of
a light emitting element; forming the **first** electrode from
the conductive film by **first** etching using a **mask**
; patterning the third insulating film by **second** etching
to form a patterned third insulating film, thereby **exposing**
portion of the **second** insulating film; forming a
contact hole in the **first** insulating film, the
second insulating film, and a gate insulating film of the
thin film transistor where the **contact** hole is
located in the **exposed** portion of the **second**
insulating film; forming a wire in the **contact** hole
wherein the wire is brought into **contact** with the
thin film transistor and the **first** electrode;
forming an organic compound layer over the **first** electrode; and
forming a **second** electrode of the light emitting element
over the organic compound layer.

IC ICM H01L027-15
ICS H01L031-12; H01L023-62; H01L033-00; H01L031-153
INCL 257072000; 257081000; 257084000; 313500000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 76
IT Acrylic **polymers**, uses
Polyamides, uses
Polyimides, uses
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PYP (Physical process); PROC (Process); USES
(Uses)
(light-emitting devices containing multilayer insulating film formed
between TFT and light-emitting element, and method of manufacturing
devices)
IT 4733-39-5, Bathocuproin
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PYP (Physical process); PROC (Process); USES
(Uses)
(carrier-**blocking** layer; light-emitting devices containing
multilayer insulating film formed between TFT and light-emitting
element, and method of manufacturing devices)

L120 ANSWER 18 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:300313 Document No. 138:279904 Design of a printed circuit board having a permanent solder **mask.** Maa, Chong-Ren; Chih, Wan-Kuo; Tsai, Ming-Sung (S & S Technology Corporation, Taiwan; Ultratera Corp.). U.S. Pat. Appl. Publ. US 2003070835 A1 20030417, 7 pp., Cont.-in-part of U.S. 6,395,625. (English). CODEN: USXXCO. APPLICATION: US 2002-153852 20020524. PRIORITY: US 2001-2001/974908 20011012; TW 2002-91110994 20020524.

AB The invention relates to the design of a printed circuit board having a permanent solder **mask** that has an even and smooth outer **surface.** A printed circuit board having a permanent solder **mask** includes a substrate made of a glass fiber-reinforced epoxy **resin** material. The **top** and **bottom surfaces** of the substrate are coated with a conductive pattern. An epoxy **resin** solder **mask** is coated on each **surface** of the substrate in such a way that the conductive pattern is divided into a sheltered portion **covered** by the solder **mask** and an unsheltered portion **exposed** outside. The solder **mask** also has an even and smooth outer **surface** with a microroughness of 0.5-10 μm and an optimum **thickness** ranging of 2-200 μm.

IC ICM H05K001-03
INCL 174255000
CC 76-14 (Electric Phenomena)
Section cross-reference(s): 38
ST printed circuit board permanent solder **mask**
IT Acrylic **polymers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(cyano-containing, solder **mask**; design of a printed circuit board having a permanent solder **mask**)
IT Printed circuit boards
Solder resists
(design of a printed circuit board having a permanent solder **mask**)
IT Films
(elec. conductive; design of a printed circuit board having a permanent solder **mask**)
IT Electric conductors
(films; design of a printed circuit board having a permanent solder **mask**)
IT Epoxy **resins**, uses
Polyamides, uses
Polymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(solder **mask**; design of a printed circuit board having a permanent solder **mask**)
IT Electric **contacts**
Interconnections, electric
(vias; design of a printed circuit board having a permanent solder **mask**)

L120 ANSWER 19 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:257982 Document No. 138:272659 Metal-coated plastic moldings and their manufacture. Watanabe, Mitsuru (Polyplastics Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003096221 A2 20030403, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-292533 20010925.

AB The moldings for elec. circuit- and/or electromagnetic **shield**-layered moldings, elec. or electronic connectors, optical communication links, electronic control units, discharge lamp voltage-raising parts, cellular phones, and portable communication terminal parts, are manufactured by (1) (a) filling molds with molten poly(arylene sulfides) and solidifying the **polymers** to satisfy amts. of heat generated in cold crystallization measured by DSC of moldings ≥5.0 J/g-poly(arylene sulfides) or (b) molding the molten **polymers** with molds at 0-90°, (2) optionally **masking** the molded **polymer** surface to have desired patterns, (3) coating the surface with electroless plating catalyst-containing materials, (4) drying, and (5) carrying out electroless plating. Thus, glass fiber-containing poly(phenylene sulfide) was injection-molded, degreased, coated with a Ag-containing one-component urethane coating, dried, and electroless-plated with Cu to give a test piece showing good film adhesion and resistance to heat, moisture, and cold-heat cycles.

IC ICM C08J007-04
ICS B29C045-76; C08K003-00; C08L081-02; B29K081-00

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 56, 76

IT Acrylic **polymers**, uses
Polyurethanes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(catalyst coating with; metal-coated polythioarylene moldings manufactured by controlled molding, coating with catalyst, and electroless plating)

IT Electric circuits
Electromagnetic **shields**
(coating on moldings; metal-coated polythioarylene moldings manufactured by controlled molding, coating with catalyst, and electroless plating)

L120 ANSWER 20 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:901525 Document No. 137:391178 Matrix substrate and its manufacture for liquid crystal display. Kyoho, Akinori; Komota, Tomohisa; Yamamoto, Tatsushi; Kira, Toru (Sharp Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2002341382 A2 20021127, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-151126 20010521.

AB The substrate having matrix circuits (e.g., TFT active matrix circuit) for forming plural liquid crystal cells on a insulator substrate, is manufactured by forming matrix circuits on the substrate, coating the circuits with insulating **resins** (e.g., photosensitive acrylic **polymers**) to form flat insulator films, forming resist layers on the insulator films, half-tone **exposing** the resist layers with **masks** so that

contact hole regions are not retained but **contact**
hole-excluding pixel electrode regions are **thinly** retained
and other regions are **thickly** retained, etching the
contact hole regions to form holes piercing to the matrix
circuits, ashing until the insulator films in the hole-excluding
pixel electrode regions are **exposed**, forming transparent
conductive films **covering** the insulator films, forming
flat films on the conductive films, and etching all **surface**
until the insulator films in protruded regions excluding pixel
electrode regions are **exposed.** Number of **photomasks**
used is decreased in the half-tone **exposure** method when
compared with conventional method.

IC ICM G02F001-1368
ICS G03F007-20; G09F009-30; G09F009-35; H01L021-336; H01L029-786

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)

ST active matrix liq crystal display half tone **photomask**

IT Ashing
Dielectric films
Etching
Liquid crystal displays
Photolithography
Photomasks (lithographic **masks**)
Thin film transistors
(manufacture of matrix substrate by half-tone **exposure** step
for liquid crystal display)

IT Acrylic **polymers**, uses
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(manufacture of matrix substrate by half-tone **exposure** step
for liquid crystal display)

L120 ANSWER 21 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

2002:863571 Chronic **exposure** to the ultraviolet radiation
levels from arc welding does not result in obvious damage to the
human corneal endothelium. Oblak, Emil; Doughty, Michael J.
(Department of Vision Sciences, Glasgow Caledonian University,
Glasgow, G4 0BA, UK). Photochemical & Photobiological Sciences,
1(11), 857-864 (English) 2002. CODEN: PPSHCB. ISSN: 1474-905X.
Publisher: Royal Society of Chemistry.

AB Occupational **exposure** of the cornea to UV radiation (UVR,
e.g. in welding) is a well-known cause of arc eye'
(photo-keratoconjunctivititis), but has also been considered to be a
risk for the development of alterations in the size (
polymegethism) and shape (pleomorphism) of the deeper-lying
human corneal endothelial cells. Human data are however limited and
so a further study was undertaken, with a control group. Non-
contact specular micrographs of the central region of the
corneal endothelium were obtained from 40 white males aged between
32 and 63 yr; 20 were arc welders with an average of 25 ± 7 yr job
experience, while the others were office workers (n = 20). All the
welders reported occupational **exposure** to UVR (i.e.

welders flashes') and up to 3 times per yr. None of the subjects had a history of **contact** lens wear, major eye disease or surgery. The endothelial image was scanned, projected onto an overlay and cell border marking carried out in a **masked** fashion. The overlay was independently analyzed, by a customised semi-automated method, providing cell-border-adjusted data on cell areas and cell shape (**sides**) on 124 to 260 cells per image. The endothelial cell d. (ECD) values were also calculated from individual cell area values. All corneas appeared to be healthy, and showed no fluorescein staining indicating damage to the **surface** epithelium. Central corneal **thickness** values were normal at 0.531 ± 0.031 (mean ± SD) and 0.527 ± 0.036 **mm** in the welders and non-welders resp. All endothelia appeared healthy, with no evidence of cell edema. The group-mean endothelial cell area was 393 ± 35 and 392 ± 21 μm2, ECD values were 2855 ± 224 cells **mm**-2 and 2852 ± 210 cells **mm**-2, while the percentages of 6-**sided** cells were 60 ± 5.2 and 59 ± 4.1% resp. Cell area distributions were statistically identical (p ≥ 0.8), and cell area-**side** relationships were marginally, but not statistically different. This study does not indicate that chronic UV radiation **exposure**, through occupational welding (mainly elec. arc), results in or is associated with endothelial cell **polymegethism** and pleomorphism. This may indicate that, despite the periodic flash welding **exposures**, the **exposure** levels are still below those needed to cause damage to the corneal endothelium. This study outcome can be taken to indicate that despite the occurrence of welders flash episodes, the eye **protection** habitually used by these workers was adequate to **protect** their corneal endothelium.

L120 ANSWER 22 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:748691 Document No. 137:239064 Cantilevered multilevel LIGA devices and methods. Morales, Alfredo Martin; Domeier, Linda A. (Sandia National Laboratories, USA). U.S. US 6458263 B1 20021001, 11 pp. (English). CODEN: USXXAM. APPLICATION: US 2000-677041 20000929.

AB In the formation of multilevel LIGA microstructures, a preformed sheet of photoresist material, such as **polymethylmethacrylate** (PMMA) is patterned by **exposure** through a **mask** to radiation, such as X-rays, and developed using a developer to remove the **exposed** photoresist material. A **first** microstructure is then formed by electroplating metal into the areas from which the photoresist has been removed. Addnl. levels of microstructure are added to the initial microstructure by **covering** the **first** microstructure with a conductive **polymer**, machining the conductive **polymer** layer to reveal the **surface** of the **first** microstructure, sealing the conductive **polymer** and **surface** of the **first** microstructure with a metal layer, and then forming the **second** level of

structure on **top** of the **first** level structure.
In such a manner, multiple layers of microstructure can be built up to allow complex cantilevered microstructures to be formed.

IC ICM C25D005-02
INCL 205118000
CC 72-8 (Electrochemistry)
Section cross-reference(s): 38, 56, 76
IT Vapor deposition process
(of titanium **thin** film, in fabrication of cantilevered multilevel LIGA devices)
IT Etching
(plasma; of titanium **thin** film, in fabrication of cantilevered multilevel LIGA devices)
IT Conducting **polymers**
Electrodeposition
Photoresists
(use in fabrication of cantilevered multilevel LIGA devices)
IT 75-73-0, Carbon tetrafluoride 7782-41-4, Fluorine, reactions
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(fabrication of cantilevered multilevel LIGA devices using plasma etching of titanium **thin** film with)
IT 7440-32-6, Titanium, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(**thin** film, use in fabrication of cantilevered multilevel LIGA devices)

L120 ANSWER 23 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:736576 Document No. 137:256718 Method for forming a **thin** film and method for fabricating a **thin** film magnetic head. Maekawa, Kazuya; Iijima, Akio; Sato, Junichi; Miyamoto, Hiroyuki (TDK Corporation, Japan). U.S. Pat. Appl. Publ. US 2002133935 A1 20020926, 14 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-97625 20020315. PRIORITY: JP 2001-86757 20010326.

AB A method is claimed for forming a **thin** film which inhibits the formation of **polymer** residues during etching of the intermediate layer and deterioration of the photoresist in formation of the intermediate layer in magnetic head fabrication. An electrode film and a **protective** electrode film are formed on an insulating film and a **1st** magnetic film in turn. Then, a **1st** photoresist layer, an intermediate layer and a **2nd** photoresist layer are formed on the **protective** electrode film in turn. The intermediate layer is formed by a sputtering method so that the **surface** temperature of the intermediate layer is set to 140° or below. Then, the **1st** photoresist layer is **exposed** and developed, to fabricate a photoresist pattern. Then, the intermediate layer is partially etched and removed via the photoresist pattern as a **mask** by a reactive ion etching method using a Cl-based gas.

IC ICM G11B005-127

ICS H04R031-00
INGL 029603180
CC 77-8 (Magnetic Phenomena)

L120 ANSWER 24 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:291875 Document No. 136:318251 Magnetic **shield** fabrication for electronic packages using a ferrite encapsulate coating. Bator, Philip M.; Macko, Andrew R.; King, Jack H., Jr. (Visteon Global Technologies, Inc., USA). Eur. Pat. Appl. EP 1198165 A2 20020417, 9 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2001-124468 20011011. PRIORITY: US 2000-686189 20001011.

AB Magnetic **shield** fabrication for electronic packages using a ferrite encapsulate coating is claimed. A method to absorb magnetic fields begins by placing an electronic unit into a fixture. The electronic unit contains at least one elec. component, such as a microchip, that requires a reduction of a magnetic field. The microchip can be surrounded by a containment apparatus, such as a mold, into which encapsulant is poured. Exclusion devices, such as **masks**, protect components that should not be coated. Once the electronic unit was prepared, it is exposed to magnetic field interference. At this point, encapsulant is poured into all molds on the electronic unit. Ferrite particles comprise a portion of the encapsulant and initially are randomly distributed throughout. When the ferrite particles are exposed to a magnetic field, they migrate along the generated field lines and absorb the magnetic field. After the new distribution of ferrite particles occurs, the encapsulant can be cured. Curing the encapsulant causes the ferrite particles to be frozen in place along the field lines, allowing for continuous protection of the microchip.

IC ICM H05K009-00
CC 77-3 (Magnetic Phenomena)
Section cross-reference(s): 76
ST magnetic **shield** molding ferrite **polymer** composite electronic packaging
IT Magnetic particles
(ferrite; magnetic **shield** fabrication for electronic packages using ferrite encapsulate coating)
IT Composites
Crosslinking
Electronic packages
Fillers
Magnetic field effects
Magnetic **shields**
Molding of plastics and rubbers
Polymerization catalysts
Potting
(magnetic **shield** fabrication for electronic packages using ferrite encapsulate coating)
IT Ferrites
RL: PEP (Physical, engineering or chemical process); PYP (Physical

process); TEM (Technical or engineered material use); PROC
(Process); USES (Uses)
(magnetic **shield** fabrication for electronic packages
using ferrite encapsulate coating)
IT **Polymers**, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical
process); TEM (Technical or engineered material use); PROC
(Process); USES (Uses)
(nonconducting; magnetic **shield** fabrication for
electronic packages using ferrite encapsulate coating)

L120 ANSWER 25 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:241237 Document No. 136:271898 Thermally activated
polymer for microfluidic device for use with power sources.
Mastrangelo, Carlos H.; Carlen, Edwin T. (USA). U.S. Pat. Appl.
Publ. US 2002037221 A1 20020328, 15 pp. (English). CODEN: USXXCO.
APPLICATION: US 2001-874927 20010605. PRIORITY: US 2000-PV209749
20000606.
AB A thermally activated **polymer** microfluidic device adapted
for use with a power source is disclosed. The device includes a
substrate and a heater member. The substrate and heater member form
a 1st portion. A 2nd portion is formed adjacent to the 1st portion.
The 2nd portion includes a high activating power **polymer**
portion, at least one resin layer and a **shield** member.
The 2nd portion is selectively shaped to form a thermal expansion
portion. A diaphragm member encapsulates the thermal expansion
portion so that when power is applied to the heater portion, the
high activating power **polymer** expands against the
diaphragm member, causing the diaphragm member to deflect. This
device is adapted for use as a microactuator or a blocking
microvalve.
IC ICM H01L041-08
ICS H01L041-18; B05B017-04; E03B001-00; B05B012-08; F17D001-00;
H02N002-00; A01G025-00; A01G027-00; F04B049-02
INCL 417010000
CC 76-14 (Electric Phenomena)
Section cross-reference(s): 38
ST microfluidic actuator thermally activated **polymer**
fabrication
IT Valves
(micro; thermally activated **polymer** for microfluidic
device for use with power sources)
IT Electric generators
(power supplies; thermally activated **polymer** for
microfluidic device for use with power sources)
IT Electric contacts
Electric heaters
Etching
Etching **masks**
Evaporation
Glass substrates
Lithography

Membranes, nonbiological
Microactuators
Photoresists
Potting
Shields
(thermally activated **polymer** for microfluidic device for use with power sources)

IT Alloys, uses
RL: DEV (Device component use); USES (Uses)
(thermally activated **polymer** for microfluidic device for use with power sources)

IT **Polymers**, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(thermally activated **polymer** for microfluidic device for use with power sources)

IT Plastics, uses
RL: DEV (Device component use); USES (Uses)
(thermoplastics; thermally activated **polymer** for microfluidic device for use with power sources)

IT 75-73-0, Carbon fluoride (CF4) 7782-44-7, Oxygen, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(thermally activated **polymer** for microfluidic device for use with power sources)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 9002-88-4, Polyethylene 25722-33-2, Parylene 37206-70-5
RL: DEV (Device component use); USES (Uses)
(thermally activated **polymer** for microfluidic device for use with power sources)

IT 630-06-8, n-Hexatriacontane 646-31-1, n-Tetracosane 7098-22-8, n-Tetratetracontane
RL: TEM (Technical or engineered material use); USES (Uses)
(thermally activated **polymer** for microfluidic device for use with power sources)

L120 ANSWER 26 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:11090 Document No. 136:78122 Method and apparatus for **protecting** and strengthening electrical **contact** interfaces. Ong, E. C. (USA). U.S. Pat. Appl. Publ. US 2002001981 A1 20020103, 13 pp., Division of U.S. Ser. No. 625,693. (English). CODEN: USXXCO. APPLICATION: US 2000-752116 20001229. PRIORITY: US 2000-609626 20000703; US 2000-625693 20000726.

AB A method for providing elec. **contact** to pads on a **surface** of a device involves steps of adding a **1st** **contact** extension to individual ones of the pads, **covering** the pads and **contact** extensions with a layer of **protective** material, removing a portion of the

layer of **protective** material such that a portion of each of the **contact** extensions is **exposed**, and applying a **2nd contact** extension to individual ones of the **exposed 1st contact** extensions. The **1st** extensions may be any of several different kinds, including wires or solder balls, and the **protective** material layer provides both **protection** from environmental effects and added lateral strength for the connection of the **1st** extensions to the **contact** pads.

IC ICM H05K001-00
ICS H01R012-00; H05K003-34

INCL 439071000

CC 76-2 (Electric Phenomena)

ST app **protecting** strengthening elec **contact** interface

IT Electric **contacts**
Etching
Etching **masks**
Solders
Spraying
(method and apparatus for **protecting** and strengthening elec. **contact** interfaces)

IT **Polymers**, uses
RL: DEV (Device component use); USES (Uses)
(method and apparatus for **protecting** and strengthening elec. **contact** interfaces)

IT Machining
(phys.; method and apparatus for **protecting** and strengthening elec. **contact** interfaces)

IT Etching
(plasma; method and apparatus for **protecting** and strengthening elec. **contact** interfaces)

IT 18851-77-9, Nitride
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**protective** layer; method and apparatus for **protecting** and strengthening elec. **contact** interfaces)

L120 ANSWER 27 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

2001:692057 Document No. 135:258618 Photosensitive coloring compositions with lasting high sensitivity and chromatic stability for color filters in LCD products. Inoue, Koji (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001255412 A2 20010921, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-68079 20000313.

AB The title compns. comprise: (A) a pigment, (B) a binder such as an acrylic **polymer**, (C) a **polymerizable** compound, and (D) a photoinitiator, and can be coated on any **side** of a substrate and dried to form a film, wherein the **thickness** of a film containing only A is >0.4 μm in the case of the sp. gr. of

a dried film containing all A-D components as 1 (sic), and the ratio of (**thickness** of a film containing only A/**thickness** of a film containing only D) is 5-30, and the color filters contain at least one coloring layer from a title composition having a **thickness** 1.5-3.5 μm. Thus, coating on a PET substrate film with three compns. in the order of: (1) a thermoplastic composition to a dried 15 μm **thick** layer, (2) a 16 μm **thick** intermediate layer after dried, and (3) a coloring layer, e.g., a red layer, of 2.4 μm **thickness** from a title composition, and **covering** a polypropylene film (12 μm **thick**) gave a photosensitive sheet, which was applied on a silane coupling **agent**-treated glass plate after peeling off the **cover** film, **exposed** under high pressure Hg lamp using a **photomask** after removing the PET substrate to give red color pattern. A color filter was obtained by laminating green, blue, and black layers successively on the red color pattern in the same way.

IC ICM G02B005-20
ICS C08F002-44; C08F002-50; C08F291-06; C08K005-00; C08L101-00; G02F001-1335; G03F007-004; G03F007-027; G03F007-028; G03F007-033

CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 41, 74, 75

IT 65697-21-4, Benzyl methacrylate-methacrylic acid **copolymer**
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; photosensitive compns. for color filters in LCD products)

IT 67653-78-5P, Dipentaerythritol hexaacrylate **homopolymer**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(coating vehicle; photosensitive compns. for color filters in LCD products)

L120 ANSWER 28 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

2001:338213 Document No. 134:334363 Liquid crystal display using active matrix substrate having **thickness**-controlled polyimide layer and its manufacture. Chikama, Yoshimasa; Izumi, Yoshihiro (Sharp Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2001125136 A2 20010511, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-305373 19991027.

AB In the liquid crystal display comprising a liquid crystal layer sandwiched between **1st** substrate having a transparent electrode and TFT and **2nd** substrate, the display is manufactured by (1) forming a photosensitive polyimide layer with prescribed **thickness** uniformly on the **1st** substrate, (2) removing the partial **thickness** of the polyimide layer at pixel area by half **exposure** and development using a **mask**, (3) **polymerizing** the polyimide layer by heating, and (4) rubbing the polyimide **surface** for alignment. The display may be manufactured by the steps of (1), (3), (2), and (4). In the liquid crystal display, the pixel area and the TFT area are coated with the same polyimide

alignment layer and an insulating **protective** layer, and the **thickness** of the polyimide at the pixel area is less than that of the TFT area. The alignment layer, an insulating **protective** layer, and optionally a spacer are formed at the same time using the polyimide, the liquid crystal display is manufactured easily and at low cost.

IC ICM G02F001-1365
ICS G02F001-1337; G09F009-00; G09F009-30; G09F009-35

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

IT Liquid crystal displays
(active matrix substrate using **thickness**-controlled polyimide layer as alignment layer and **protective** layer for liquid crystal display)

IT Polyimides, uses
RL: DEV (Device component use); USES (Uses)
(active matrix substrate using **thickness**-controlled polyimide layer as alignment layer and **protective** layer for liquid crystal display)

L120 ANSWER 29 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

2001:336571 Document No. 134:334359 Active matrix substrate with passivation layer and its manufacture. Ibita, Satoshi; Yamaguchi, Hirotaka; Tanaka, Hiroaki; Hayase, Takasuke; Kano, Hiroshi; Kaneko, Wakahiko; Miyahara, Tae; Sakamoto, Michiaki; Nakata, Shinichi (NEC Corp., Japan; NEC Kagoshima, Ltd.). Jpn. Kokai Tokkyo Koho JP 2001125134 A2 20010511, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-304682 19991026.

AB The active matrix substrate is manufactured by the steps of (1) forming a transparent electrode and a metal layer on a transparent insulating substrate, and forming gate electrodes, gate lines, and pixel electrodes using **1st mask**, (2) forming a gate insulating layer and an amorphous Si semiconductor layer on the gate electrode and processing the gate insulating layer and amorphous Si layer to desired shape using **2nd mask**, (3) forming a passivation layer **covering** the **surface** and the **side** of the amorphous Si layer and forming an opening through the passivation layer for **contacting** the source/drain electrodes with the Si layer on the Si layer using 3rd **mask** and forming another opening through the passivation layer and metal layer for **exposing** the metal oxide layer on the pixel electrode, and (4) forming an electrode layer on the passivation layer and the upperside of the opening and forming lines connecting the **exposed** Si layer and the pixel electrode and drain lines using 4th **mask.** The obtained active matrix substrate is also claimed. Channel **protective** type active matrix substrate in which amorphous Si layer is **covered** with the passivation layer is obtained easily.

IC ICM G02F001-1365
ICS G09F009-30; H01L029-786; H01L021-336

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and

Other Reprographic Processes)
Section cross-reference(s): 76

ST active matrix substrate passivation layer; channel **protective** type active matrix substrate

IT Liquid crystal displays
  Thin film transistors
    (manufacture of channel **protective**-type active matrix substrate having passivation layer for liquid crystal display)

IT Acrylic **polymers**, uses
Polyimides, uses
RL: DEV (Device component use); USES (Uses)
    (passivation layer; manufacture of channel **protective**-type active matrix substrate having passivation layer for liquid crystal display)

IT 7440-21-3, Silicon, uses
RL: DEV (Device component use); USES (Uses)
    (amorphous; manufacture of channel **protective**-type active matrix substrate having passivation layer for liquid crystal display)

IT 7631-86-9, Silicon oxide, uses 12033-89-5, Silicon nitride, uses 139196-38-6, Benzocyclobutene **homopolymer**
RL: DEV (Device component use); USES (Uses)
    (passivation layer; manufacture of channel **protective**-type active matrix substrate having passivation layer for liquid crystal display)

IT 50926-11-9, ITO
RL: DEV (Device component use); USES (Uses)
    (transparent electrode; manufacture of channel **protective** -type active matrix substrate having passivation layer for liquid crystal display)

L120 ANSWER 30 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

2001:299122 Document No. 134:334276 Photosensitive **polymer** compositions, their laminates, and manufacture of printed circuit boards. Yoshida, Tomoko; Tomita, Hiroaki (Asahi Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001117225 A2 20010427, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-292688 19991014.

AB The compns. comprise (i) 20-80 weight% alkaline-soluble **polymers** containing CO2H of acid value 100-600 and having weight average mol. weight 10000-500,000, (ii) 10-40 weight% urethane compds. (A) obtained by reaction of (a) terminate isocyanate on polyurethanes derived from diisocyanate and OH-terminated compds. and (b) ethylenically unsatd. compds. having groups containing active H and/or (B) CH2:CR1COR2OCONHWNHCOR3OCOCR4:CH2 (R1, R4 = H, Me; R2-3 = (OCH2CH2)n1, (OCH2CHMe)n2, (OCHMeCH2)n3, (OCH2CH2CH2CH2)n4, (OCHMeCH2CH2)n5, (OCH2CHMeCH2)n6; total of n1 to n6 = integer of 1-25; W = C2-20 bivalent hydrocarbon), (iii) 5-30 weight% photopolymerizable monomers having ≥3 ethylenically unsatd. groups, and (iv) 0.01-30 weight% photoinitiators. The compns. show 0-20% swelling of developing **agents**, have tent piercing strength ≥2.45 N, and tent piercing elongation ≥1

mm. Supports laminated with layers of the compns. are also claimed. Printed circuits are manufactured by heat-press lamination of the above stated laminate on a substrate metal **surface**, imagewise **exposure** of the laminate through a **photomask**, development of the layer with an aqueous alkaline solution, etching or plating of the **exposed** metal **surface**, and removal of the cured resist with an aqueous alkaline solution stronger than that used for development. The support of the laminate is removed before or after imagewise **exposure.** The laminates, used as dry film resists, have high resolution, excellent **edge** fusing properties, and tenting reliability.

IC ICM G03F007-027
ICS G03F007-004; H05K003-00

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

IT Photoresists
(dry-film; photosensitive **polymer** compns. for dry-film resists having high resolution and tenting reliability and manufacture of printed circuits)

IT Printed circuit boards
(photosensitive **polymer** compns. for dry-film resists having high resolution and tenting reliability and manufacture of printed circuits)

IT Polyurethanes, processes
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(polyester-, acrylate-terminated; photosensitive **polymer** compns. for dry-film resists having high resolution and tenting reliability and manufacture of printed circuits)

IT Polyurethanes, processes
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(polyester-polyoxyalkylene-, **block**, acrylate-terminated; photosensitive **polymer** compns. for dry-film resists having high resolution and tenting reliability and manufacture of printed circuits)

IT 90-94-8 119-61-9, Benzophenone, processes 1707-68-2, 2-(o-Chlorophenyl)-4,5-diphenyl imidazolyl dimer
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(photoinitiator; photosensitive **polymer** compns. for dry-film resists having high resolution and tenting reliability and manufacture of printed circuits)

IT 818-61-1DP, reaction products with polyurethanes 822-06-0DP, Hexamethylene diisocyanate, reaction products with polyoxyalkylene monomethacrylate 25736-86-1DP, Blemmer PE 200, reaction products with hexamethylene diisocyanate 36671-24-6DP, Adipic acid-ethylene glycol-m-xylylene diisocyanate **polymer**, reaction products with hydroxyethyl acrylate 39420-45-6DP, Blemmer PP 1000, reaction

products with hexamethylene diisocyanate 232927-51-4DP, Adipic acid-1,4-butanediol-ethylene oxide-isophorone diisocyanate-propylene oxide **block copolymer**, reaction products with hydroxyethyl acrylate
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(photosensitive **polymer** compns. for dry-film resists having high resolution and tenting reliability and manufacture of printed circuits)

IT 15625-89-5, Trimethylolpropane triacrylate 25035-69-2, n-Butyl acrylate-methacrylic acid-methyl methacrylate **copolymer** 29763-27-7, Acrylonitrile-methacrylic acid-methyl methacrylate **copolymer** 57491-53-9, Nonaethylene glycol diacrylate 75577-70-7
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(photosensitive **polymer** compns. for dry-film resists having high resolution and tenting reliability and manufacture of printed circuits)

L120 ANSWER 31 OF 78 HCAPLUS

2000:889977 Document No. 134:179054 Intrinsically conducting **polymers** and their potential in electromagnetic radiation **shielding.** Faez, Roselena; Rezende, Mirabel C.; Martin, Inacio M.; De Paoli, Marco A. (Divisao de Materiais, IAE, CTA, Sao Jose dos Campos, 12288-904, Brazil). Polimeros: Ciencia e Tecnologia, 10(3), 130-137 (Portuguese) 2000. CODEN: PCTEFL. ISSN: 0104-1428. Publisher: Associacao Brasileira de Polimeros.

AB The elec. and magnetic properties of various conducting **polymers** were studied and correlated with their efficiency as electromagnetic radiation absorbers, for use in radar **masking** applications. The **polymers** considered are polyaniline, emeraldine base doped with HCl or with dodecylbenzenesulfonic acid, alone and in blends with EPDM. The magnetic reflectivity of EPDM - 30-80% PAni-DBSA blend films of thickness of 1 and 3 mm, was measured at 8-12 GHz; the blends absorbed 50-90% incident magnetic radiation. The blends are promising materials for use as electromagnetic **shields.**

CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 76, 77

ST polyaniline dodecylbenzenesulfonic acid EPDM blend electromagnetic **shield**; radar **masking** absorber conducting **polymer** material

IT EPDM rubber
Polyanilines
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(blends; magnetic radiation absorbance and reflectivity of polyaniline-EPDM blends for electromagnetic radiation **shielding** and radar **masking** applications)

IT Conducting **polymers**

Electromagnetic **shields**
Magnetic **shields**
Radar
(magnetic radiation absorbance and reflectivity of polyaniline-EPDM blends for electromagnetic radiation **shielding** and radar **masking** applications)

IT **Polymer** blends
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(magnetic radiation absorbance and reflectivity of polyaniline-EPDM blends for electromagnetic radiation **shielding** and radar **masking** applications)

IT 25233-30-1, Polyaniline
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(blends; magnetic radiation absorbance and reflectivity of polyaniline-EPDM blends for electromagnetic radiation **shielding** and radar **masking** applications)

IT 27176-87-0, Dodecylbenzenesulfonic acid
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyaniline dopant; magnetic radiation absorbance and reflectivity of polyaniline-EPDM blends for electromagnetic radiation **shielding** and radar **masking** applications)

L120 ANSWER 32 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2000:858989 Document No. 134:139120 **Proximity** X-ray Lithography Using Self-Assembled Alkylsiloxane Films: Resolution and Pattern Transfer. Yang, Xiao M.; Peters, Richard D.; Kim, Tae K.; Nealey, Paul F.; Brandow, Susan L.; Chen, Mu-San; Shirey, Loretta M.; Dressick, Walter J. (Department of Chemical Engineering and Center for Nanotechnology, University of Wisconsin, Madison, WI, 53706, USA). Langmuir, 17(1), 228-233 (English) 2001. CODEN: LANGD5. ISSN: 0743-7463. Publisher: American Chemical Society.

AB Self-assembled films of octadecyltrichlorosilane (OTS) on Si/SiO2 were patterned with **proximity** x-rays (λ = 1.0 nm) in air, resulting in the incorporation of oxygen-containing functional groups, i.e., hydroxyl and aldehyde, into the film. Unexposed and **exposed** OTS exhibited sufficient chemical contrast for patterning processes based on differences in wetting behavior and chemical reactivity. Latent images of features as small as .apprx.70 nm, defined by the x-ray **mask**, were successfully fabricated in the OTS with high fidelity over areas of .apprx.1 cm2. Patterned OTS was imaged directly with lateral force microscopy and indirectly through atomic force microscopy of three-**dimensional** structures formed on the **surface** of **thin** films of diblock **copolymers** after deposition and annealing on the patterned OTS. Pattern transfer of features with **dimensions** as small as .apprx.150 nm into the underlying silicon substrate was achieved by reactive ion etching using **thin** films of nickel selectively deposited onto the

exposed areas of the OTS as etch **masks.**
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST **proximity** x ray lithog octadecyltrichlorosilane self assembled film
IT X-ray **masks**
(for **proximity** x-ray lithog. of self-assembled octadecyltrichlorosilane films on Si/SiO2)
IT X-ray lithography
(**proximity**; x-ray lithog. of self-assembled octadecyltrichlorosilane films on Si/SiO2 and latent image visualization either indirectly using diblock **polymer** film or directly by selective Ni deposition)
IT Self-assembly
(x-ray lithog. of self-assembled octadecyltrichlorosilane films on Si/SiO2 and latent image visualization either indirectly using diblock **polymer** film or directly by selective Ni deposition)
IT X-ray resists
(x-ray lithog. of self-assembled octadecyltrichlorosilane films on Si/SiO2 and latent image visualization either indirectly using diblock **polymer** film or directly by selective Ni deposition in relation to)
IT 7440-06-4, Platinum, uses
RL: CAT (Catalyst use); USES (Uses)
(colloidal; x-ray lithog. of self-assembled octadecyltrichlorosilane films on Si/SiO2 and latent image visualization either indirectly using diblock **polymer** film or directly by selective Ni deposition)
IT 2551-62-4, Sulfur hexafluoride
RL: NUU (Other use, unclassified); USES (Uses)
(etching plasma; x-ray lithog. of self-assembled octadecyltrichlorosilane films on Si/SiO2 and latent image visualization either indirectly using diblock **polymer** film or directly by selective Ni deposition)
IT 7440-02-0, Nickel, processes 7440-21-3, Silicon, processes 7631-86-9, Silica, processes 106911-77-7, Methyl methacrylate-styrene **block copolymer**
696598-57-9
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(x-ray lithog. of self-assembled octadecyltrichlorosilane films on Si/SiO2 and latent image visualization either indirectly using diblock **polymer** film or directly by selective Ni deposition)
IT 112-04-9, Octadecyltrichlorosilane
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(x-ray lithog. of self-assembled octadecyltrichlorosilane films on Si/SiO2 and latent image visualization either indirectly using diblock **polymer** film or directly by selective Ni deposition)

L120 ANSWER 33 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
2000:806312 Document No. 134:200358 ArF photoresist containing novel acid labile crosslinker for high contrast and PED stability. Lee, Geunsu; Koh, Cha-Won; Hong, Sung-Eun; Jung, Jae-Chang; Jung, Min-Ho; Kim, Hyeong-Soo; Baik, Ki-Ho (Memory Research and Development Div., Hyundai Electronics Industries Co., Ltd., Ichon-si Kyungki-do, S. Korea). Proceedings of SPIE-The International Society for Optical Engineering, 3999(Pt. 1, Advances in Resist Technology and Processing XVII), 13-22 (English) 2000. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB In the previous model, the authors have introduced tert-butylcarboxylate groups in the matrix **resin** to achieve a high contrast and obtain a good lithog. performance. Most of the ArF photoresists having only tert-butylcarboxylate group as a dissoln. **inhibitor** have showed by far the inferior performance in a poor amine controlled environment. To overcome this problem, the authors greatly reduced the usage of tert-Bu carboxylate group and increased the amount of HMEBC that contains both carboxylic acid group and alc. group. Also, the authors introduced acid labile crosslinker for high contrast. The authors novel resist exhibited excellent lithog. performance without any **protective top** coating material, namely, a good PED (post **exposure** delay) stability, an improved CD (Critical **Dimension**) linearity, a proper sensitivity for process, and a good contrast. In addition, its synthetic yield was very high (°50%) and then it was cost-effective for mass production The 120 nm patterns were successfully defined at 13 mJ/cm2 using a BIM (Binary Intensity **Mask**) with 2/3 annular (0.50/0.75σ).

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT Photoresists
(photoresist **copolymer** containing novel acid labile crosslinker units for high contrast and post-**exposure** delay stability in ArF lithog.)

IT 75-46-7, Trifluoromethane 7727-37-9, Nitrogen, uses 7782-50-5, Chlorine, uses 10294-34-5, Boron trichloride
RL: NUU (Other use, unclassified); USES (Uses)
(etch plasma; photoresist **copolymer** containing novel acid labile crosslinker units for high contrast and post-**exposure** delay stability in ArF lithog.)

IT 104-15-4, p-Toluenesulfonic acid, properties 108-31-6D, Maleic anhydride, **polymer** with tert-Bu 5-norbornene-2-carboxylate and norbornene and an acid labile crosslinker 498-66-8D, Norbornene, **polymer** with tert-Bu 5-norbornene-2-carboxylate and maleic anhydride and an acid labile crosslinker 154970-45-3D, Tert-Butyl 5-norbornene-2-carboxylate, **polymer** with maleic anhydride and norbornene and an acid labile crosslinker 328060-53-3, HASP 009
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(photoresist **copolymer** containing novel acid labile crosslinker units for high contrast and post-**exposure** delay stability in ArF lithog.)

L120 ANSWER 34 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1999:260867 Document No. 130:345143 Light-**shielding** composition containing mixture of modified phenolic resin and xylene resin and pattern formation using it. Sato, Tsutomu; Yoshida, Takeshi; Sugimoto, Yasushi (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11109639 A2 19990423 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-264748 19970930.

AB The composition comprises (A) a mixture of a modified phenol resin $[(C_{10}H_{14}O)(C_{15}H_{15}O_2)(CH_2O)]_n$ and a xylene resin $(C_8H_{10}CH_2O)_m$, (B) carbon powder with 10-100 nm average particle diameter, (C) an Al chelate compound, (D) a solvent of (A), and a hardening agent of (A). Light-**shielding** patterns are formed by a process including following steps; (1) forming a photosensitive resin layer on a substrate; (2) patterning the photosensitive resin layer by **exposure** through a pattern **mask** and development, (3) forming a pattern by filling the space in the patterned photosensitive layer with the above composition, and (4) removing the photosensitive resin layer with a releasing solution The composition provides patterns with optical d. ≥2.5/0.5-μm-**thickness**, which is suitable for black matrix in color filter in liquid crystal display device.

IC ICM G03F007-105
ICS C08K013-04; C08L059-00; G02B005-00; G02B005-20; G02F001-1335; G03F007-004; G03F007-40; C08K005-01; C08K007-18

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

ST light **shielding** compn resin mixt; modified phenolic resin mixt light **shield**; xylene resin mixt light **shielding** compn; black matrix color filter; liq crystal display color filter

IT Carbon black, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(Special Black 350; light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT Ligroine
RL: NUU (Other use, unclassified); USES (Uses)
(aromatic, hydrocarbons, solvents; in light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT Naphthenic acids, uses
RL: MOA (Modifier or additive use); USES (Uses)
(cobalt salts, hardeners; light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT Photolithography
(for preparation of light **shield** pattern made of composition

containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT Dispersing agents
(in light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT Crosslinking agents
Light **shields**
Liquid crystal displays
Optical filters
(light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT Phenolic resins, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT **Polymer** blends
RL: TEM (Technical or engineered material use); USES (Uses)
(light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT Hydrocarbons, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvents; in light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT 84431-92-5, Plenact ALM
RL: MOA (Modifier or additive use); USES (Uses)
(dispersant; light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT 15306-17-9, Aluminum tris(ethylacetoacetate)
RL: MOA (Modifier or additive use); USES (Uses)
(dispersing agent; in light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT 50-00-0D, Formaldehyde, **polymers**, uses 9008-61-1, Formaldehyde-xylenol copolymer
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT 223917-18-8, PR 50689E
RL: TEM (Technical or engineered material use); USES (Uses)
(light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT 223916-90-3, AZ-RFE 210K 223917-14-4, MER 01

RL: TEM (Technical or engineered material use); USES (Uses)
(photosensitive; for preparation of light **shield** pattern made of composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

IT 109116-28-1, Pegasol AN 45
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; light-**shielding** composition containing mixture of modified phenolic resin and xylene resin for color filter in liquid crystal display)

L120 ANSWER 35 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1998:776519 Document No. 130:146072 Extension of 248 nm optical lithography: a **thin** film imaging approach. Lin, Qinghuang; Katnani, Ahmad; Brunner, Timothy; DeWan, Charlotte; Fairchok, Cindy; La Tulipe, Douglas; Simons, John; Petrillo, Karen; Babich, Katherina; Seeger, David; Angelopoulos, Marie; Sooriyakumaran, Ratnam; Wallraff, Gregory; Hofer, Donald (IBM SRDC, Hopewell Junction, NY, 12533, USA). Proceedings of SPIE-The International Society for Optical Engineering, 3333(Pt. 1, Advances in Resist Technology and Processing XV), 278-288 (English) 1998. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB A neg.-tone bilayer **thin** film imaged (TFI) resist has been developed for extension of 248 nm optical lithog. to sub-150 nm regime. The bilayer TFI resist system consists of a **thin** (0.2 um) silicon containing **top** imaging layer and a **thick** (0.7-0.8 um) highly absorbing organic underlayer. The chemical amplified neg.-tone **top** layer resist contains: an aqueous base soluble silicon containing **polymer**, poly(hydroxybenzylsilsesquioxane); a crosslinking **agent**; and a photoacid generator. The highly absorptive underlayer is a hard baked novolak resist or a deep-UV antireflection coating (ARC). Imaging of the **top** layer resist has shown resolns. down to 137.5 nm for line/space features and 130 nm for isolated features with 248 nm **exposure** tools and chrome on glass **masks.** The O2 reactive ion etch (RIE) selectivity of the **top** layer vs. a novolak underlayer is more than 25:1 as a result of the high silicon content in the silicon containing **polymer.** Furthermore, residue-free and nearly vertical wall profile image transfer to the underlayer has been achieved with RIE. Application of the neg.-tone bilayer resist to 150 nm Gbit DRAM critical level lithog. has been demonstrated. Resist line **edge** roughness is also discussed.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

ST lithog bilayer photoresist hydroxybenzylsilsesquioxane **polymer** onium salt

IT Memory devices
(DRAM (dynamic random access); neg.-tone bilayer photoresist containing poly(hydroxybenzylsilsesquioxane) and photoacid generator in **top** imaging layer for 150 nm Gbit DRAM fabrication)

IT Crosslinking
(acid-catalyzed; of poly(hydroxybenzylsilsesquioxane) photoresist containing photoacid generator in **top** imaging layer)
IT Negative photoresists
(bilayer photoresist containing poly(hydroxybenzylsilsesquioxane) and photoacid generator in **top** imaging layer)
IT Silsesquioxanes
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(neg.-tone bilayer photoresist containing poly(hydroxybenzylsilsesquioxane) and photoacid generator in **top** imaging layer)
IT Phenolic **resins**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(novolak, **bottom** hard baked layer; neg.-tone bilayer photoresist containing poly(hydroxybenzylsilsesquioxane) and photoacid generator in **top** imaging layer)
IT 1493-13-6, Triflic acid
RL: CAT (Catalyst use); FMU (Formation, unclassified); FORM (Formation, nonpreparative); USES (Uses)
(neg.-tone bilayer photoresist containing poly(hydroxybenzylsilsesquioxane) and photoacid generator in **top** imaging layer)
IT 188557-77-9 188557-77-9D, partially **protected** with tert-butylcarbonyl 188629-68-7 188629-68-7D, partially **protected** with tert-butylcarbonyl
RL: TEM (Technical or engineered material use); USES (Uses)
(neg.-tone bilayer photoresist containing poly(hydroxybenzylsilsesquioxane) and photoacid generator in **top** imaging layer)
IT 7782-44-7, Oxygen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(plasma etch; neg.-tone bilayer photoresist containing poly(hydroxybenzylsilsesquioxane) and photoacid generator in **top** imaging layer)

L120 ANSWER 36 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1998:388682 Document No. 129:38372 **Surface** patterning of affinity reagents using photoablation. Roberts, Matthew A.; Laederach, Alain; Bercier, Paul; Girault, Hubert Hugues; Seddon, Brian (Ecole Polytechnique Federale De Lausanne (Laboratoire D'Electrochimie), Switz.; Roberts, Matthew A.; Laederach, Alain; Bercier, Paul; Girault, Hubert Hugues; Seddon, Brian). PCT Int. Appl. WO 9823957 A1 19980604, 40 pp. DESIGNATED STATES: W: JP, US; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1997-GB3246 19971127. PRIORITY: GB 1996-24686 19961127.
AB UV-laser photoablation is used for the 3-**dimensional** patterning of **biol.** and chemical substances onto **polymer** and other UV-absorbing substrates to form **biosensors** for various anal. tasks. This method creates ablated lines, holes, or entire networks of structures which may

selectively contain a chemical substance of interest and have critical **dimensions** in the range of 1-1000 μm. High-energy pulses are fired at a **protected polymer** substrate, such as cellulose acetate, polystyrene, polycarbonate, polyethylene terephthalate, or polyimide, from an UV excimer laser, thereby creating an ablated cavity which passes through the **protective** layer and into the underlying substrate. Complex geometrical structures may be fabricated by repetitive firing of the laser through a series of **masks** onto stationary substrates. The resulting ablated-**polymer** structures show increased rugosity which enhances the **surface** area for binding chemical or **biol.** receptors, including enzymes, antibodies, nucleic acids, other **polymers**, gels, membranes, etc. Binding may then be accomplished via simple adsorption or through covalent and/or noncovalent conjugation to the entire **surface**, both ablated and non-ablated. After the binding step, the **protective** layer can simply be peeled off, thereby removing the binding material from all **surfaces** , except that which is defined by UV-laser photoablation. The resulting **surface** is then left in a state which is chemical and geometrically defined by the initial UV-laser **exposure** .

IC ICM G01N033-543
ICS G01N033-53

CC 9-2 (Biochemical Methods)

ST photoablation **polymer surface biosensor** prepn; affinity reagent prepn photoablation **polymer surface**

IT Ablation
(light-induced; preparation of affinity reagents and other **biosensors** using photoablation of **polymer surfaces**)

IT **Biosensors**
Photoaffinity
(preparation of affinity reagents and other **biosensors** using photoablation of **polymer surfaces**)

IT Polycarbonates, analysis
Polyesters, analysis
Polyimides, analysis
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); DEV (Device component use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(preparation of affinity reagents and other **biosensors** using photoablation of **polymer surfaces**)

IT 9003-53-6, Polystyrene 9004-35-7, Cellulose acetate 25038-59-9, Polyethylene terephthalate, analysis
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); DEV (Device component use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(preparation of affinity reagents and other **biosensors** using photoablation of **polymer surfaces**)

L120 ANSWER 37 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1997:682695 Document No. 127:325242 **Surface** Modification
Plasma Etching and Plasma Patterning. Dai, Liming; Griesser, Hans
J.; Mau, Albert W. H. (CSIRO Division of Chemicals and Polymers,
Clayton, 3169, Australia). Journal of Physical Chemistry B,
101(46), 9548-9554 (English) 1997. CODEN: JPCBFK. ISSN: 1089-5647.
Publisher: American Chemical Society.

AB Using radiofrequency glow-discharge plasma techniques, the authors prepared **surface** patterns of various chemical functionalities on a micrometer scale. While H2O-plasma etching, discovered in this study, was used for generating **surface** patterns of O-containing polar groups using a **mask**, **surface** patterning of various functionalities, including both polar and nonpolar groups, was achieved by plasma **polymerization** in a patterned fashion using appropriate monomer vapors and/or discharge conditions. Also, the authors have developed a versatile method for obtaining patterned conducting **polymers** by **1st** depositing a **thin**, patterned plasma **polymer** layer using a **mask** onto a metal-sputtered electrode and then performing electropolymn. of monomers such as pyrrole within the regions not **covered** by the patterned plasma **polymer** layer. The conducting **polymer** patterns thus prepared are elec. active.

CC 76-11 (Electric Phenomena)
Section cross-reference(s): 35, 38

ST water plasma etching mica **polymer; polymn** plasma patterning hexane methanol; electropolymn pyrrole conducting **polymer** patterning

IT **Polymerization**
(electrochem.; **surface** patterning using water plasma etching and **polymerization**)

IT Etching
Polymerization
(plasma; **surface** patterning using water plasma etching and **polymerization**)

IT Conducting **polymers**
(**surface** patterning using water plasma etching and **polymerization**)

IT Fluoropolymers, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(**surface** patterning using water plasma etching and **polymerization**)

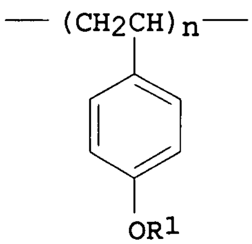
IT **Surface** roughness
(**surface** roughening from water plasma etching)

IT Mica-group minerals, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(**surface** roughening from water plasma etching)

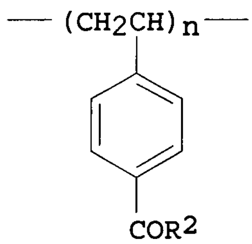
IT **Contact** angle

(water plasma **exposure** lowering of **contact**
angle of **polymers**)
IT 67-56-1, Methanol, processes 109-97-7, Pyrrole 110-54-3,
n-Hexane, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or
chemical process); PROC (Process); USES (Uses)
(monomer; **surface** patterning using water plasma etching
and **polymerization**)
IT 7732-18-5, Water, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or
chemical process); PROC (Process); USES (Uses)
(**surface** patterning using water plasma etching and
polymerization)
IT 9002-84-0, PTFE 25067-11-2
RL: PEP (Physical, engineering or chemical process); PRP
(Properties); TEM (Technical or engineered material use); PROC
(Process); USES (Uses)
(**surface** patterning using water plasma etching and
polymerization)
IT 30604-81-0, Polypyrrole
RL: PEP (Physical, engineering or chemical process); TEM (Technical
or engineered material use); PROC (Process); USES (Uses)
(**surface** patterning using water plasma etching and
polymerization)

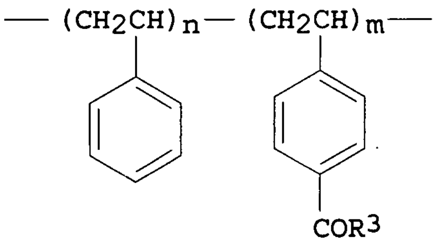
L120 ANSWER 38 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1997:195145 Document No. 126:206489 Manufacture of **thin** film
transistor including irradiation of photoresist from backside.
Ichimura, Koji; Hotsuta, Takeshi (Dai Nippon Printing Co., Ltd.,
Japan). Jpn. Kokai Tokkyo Koho JP 09005790 A2 19970110 Heisei, 12
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-174168
19950616.
GI



I



II



III

AB The TFT is manufactured by a process including following successive steps; (1) forming a opaque gate electrode on a transparent substrate, (2) forming semiconductor channel layer and an impurity-doped layer optionally associated with source and drain on the substrate through a transparent elec. insulating layer, (3) forming a resist layer which senses visual light, (4) **exposing** the resist from the **bottom** through the gate electrode as **mask**, (5) developing the resist, and (6) etching by using the nonexposed resist as **mask.** The resist may consist of a **polymer** dissolving in alkali, a dissoln. **inhibitor** which prevents the dissoln. of the **polymer** and is decomposed with acid, an acid-generating **agent** which generates acid when it is **exposed** to light, and a sensitized coloring-matter. Alternatively, the resist may consist of a **polymer** substituted with a organic group making the **polymer** soluble in alkali, which is **blocked** by hydrophobic structure, an acid-generating **agent** which generates acid when it is **exposed** to light, and a sensitized coloring-matter. The **polymer blocked** by hydrophobic structure may be a **polymer** having the following general structural formula I, II, and or III. The process for rapid patterning of channel layer is useful for manufacture of switching device in liquid crystal display device, etc.

IC ICM G02F001-136
ICS H01L029-786; H01L021-336

CC 76-3 (Electric Phenomena)
Section cross-reference(s): 38, 74

ST **thin** film transistor manuf photoresist; channel patterning film transistor photoresist; opaque gate electrode **mask** photoresist; visible ray sensitive photoresist transistor; transparent substrate photoresist **exposure** backside;

alkali sol **polymer** photoresist; polystyrene type alkali sol photoresist

IT Photoresists
Thin film transistors
Transparent materials
(manufacture of **thin** film transistor on transparent substrate including **exposing** photoresist from backside by using opaque gate electrode as **mask**)

IT Phenolic **resins**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(novolak, photoresist; manufacture of **thin** film transistor on transparent substrate including **exposing** photoresist from backside by using opaque gate electrode as **mask**)

IT 24979-70-2D, Poly(p-vinylphenol), tert-butoxycarboxyl-modified
121762-99-0, AZPF 500
RL: TEM (Technical or engineered material use); USES (Uses)
(photoresist; manufacture of **thin** film transistor on transparent substrate including **exposing** photoresist from backside by using opaque gate electrode as **mask**)

L120 ANSWER 39 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1997:96288 Document No. 126:231448 Laser etching of **polymer masked** leadframes. Ho, C. K.; Man, H. C.; Yue, T. M.; Yuen, C. W. (Department of Manufacturing Engineering, The Hong Kong Polytechnic University, Szeged, H-6720, Hong Kong). Applied Surface Science, 109/110(Laser Processing of Surfaces and Thin Films), 236-241 (English) 1997. CODEN: ASUSEE. ISSN: 0169-4332. Publisher: Elsevier.

AB A typical electroplating production line for the deposition of silver pattern on copper leadframes in the semiconductor industry involves twenty to twenty five steps of cleaning, pickling, plating, stripping etc. This complex production process occupies large floor space and has also a number of problems such as difficulty in the production of rubber **masks** and alignment, generation of toxic fumes, high cost of water consumption and sometimes uncertainty on the cleanliness of the **surfaces** to be plated. A novel laser patterning process is proposed in this paper which can replace many steps in the existing electroplating line. The proposed process involves the application of high speed laser etching techniques on leadframes which were **protected** with **polymer** coating. The desired pattern for silver electroplating is produced by laser ablation of the **polymer** coating. Excimer laser was found to be most effective for this process as it can **expose** a pattern of clean copper substrate which can be silver plated successfully. Previous working of Nd:YAG laser ablation showed that 1.06 μm radiation was not suitable for this etching process because a **thin** organic and transparent film remained on the laser etched region. The effect of excimer pulse frequency and energy d. **upon** the removal rate of the **polymer** coating was studied.

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 76
ST laser etching **polymer masked** leadframe; excimer
pulse laser etching leadframe; copper leadframe excimer pulse laser
etching; silver leadframe excimer pulse laser etching
IT Etching
(laser ablation; laser etching of **polymer**
masked leadframes)
IT Laser ablation
Laser radiation
Semiconductor devices
(laser etching of **polymer masked** leadframes)
IT **Polymers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**mask**; laser etching of **polymer**
masked leadframes)
IT 7440-22-4, Silver, properties 7440-50-8, Copper, properties
RL: PRP (Properties); TEM (Technical or engineered material use);
USES (Uses)
(laser etching of **polymer masked** leadframes)

L120 ANSWER 40 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1997:80498 Document No. 126:90467 Light-**shielding**
masking film containing electro-conductive acrylic
antistatic layer for photomechanical process. Ako, Satoshi (Kimoto
Company Limited, Japan). Brit. UK Pat. Appl. GB 2301050 A1
19961127, 23 pp. (English). CODEN: BAXXDU. APPLICATION: GB
1996-9975 19960513. PRIORITY: JP 1995-138494 19950512.
AB **Masking** film with stable antistatic effect, comprises a
transparent support, a light-**shielding** peelable layer and
an antistatic layer containing an electro-conductive acrylic resin and,
optionally, a matting agent. Thus, a solution of Elecond PQ 50B (an
electro-conductive acrylic resin) 1.0, iso-Pr alc. 80.0 and water
19.0 parts was applied to a transparent polyester film support
coated with a light-**shielding** peelable layer (Ak Popeel EE
400AM) to give a film with a 0.1 μ-thick dry antistatic layer
which had surface resistivity of 108 Ω and showing no sticking
to operator's hands, no ash adhesion when the film was rubbed and no
blocking.
IC ICM C08J007-04
ICS B32B027-08; B32B033-00; G03F001-00
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 74
ST light **shielding masking** film; **masking**
film acrylic antistatic layer; photomech process antistatic
masking film; acrylic elec conductive antistatic agent
IT Silsesquioxanes
RL: MOA (Modifier or additive use); USES (Uses)
(Me, matting agent; light-**shielding masking**
film containing electro-conductive acrylic antistatic layer for
photomech. process)
IT Antistatic agents
(acrylic **polymer**; light-**shielding**

masking film containing electro-conductive acrylic antistatic layer for photomech. process)

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(film; light-**shielding** **masking** film containing electro-conductive acrylic antistatic layer for photomech. process)

IT Light **shields**
Photomasks (lithographic **masks**)
(light-**shielding** **masking** film containing electro-conductive acrylic antistatic layer for photomech. process)

IT Acrylic **polymers**, uses
Polysiloxanes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(particles, matting agent; light-**shielding** **masking** film containing electro-conductive acrylic antistatic layer for photomech. process)

IT Transparent films
(polyester, with a light-**shielding** peelable layer; light-**shielding** **masking** film containing electro-conductive acrylic antistatic layer for photomech. process)

IT 7631-86-9, Silica, uses
RL: MOA (Modifier or additive use); USES (Uses)
(Aerosil OK 412, matting agent; light-**shielding** **masking** film containing electro-conductive acrylic antistatic layer for photomech. process)

IT 59979-31-6, Elecond PQ 50B 83452-97-5, Cevian A 46704
120250-97-7, Saftomer STH 89 163063-43-2, Jurymer SP 50T
RL: NUU (Other use, unclassified); USES (Uses)
(antistatic agent; light-**shielding** **masking** film containing electro-conductive acrylic antistatic layer for photomech. process)

IT 471-34-1, Calcium carbonate, uses 1344-28-1, Aluminum oxide (Al2O3), uses
RL: MOA (Modifier or additive use); USES (Uses)
(matting agent; light-**shielding** **masking** film containing electro-conductive acrylic antistatic layer for photomech. process)

L120 ANSWER 41 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1996:759047 Document No. 126:34363 **Masked** solar cell apparatus. Murata, Yasushi; Minamitani, Takanori; Mori, Kazuya (Citizen Watch Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08255922 A2 19961001 Heisei, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-57872 19950317.

AB The apparatus has a plurality of patterned metal electrode on a substrate, amorphous Si films held between the metal electrodes and transparent electrodes forming solar cells, protection films on the metal and/or the transparent electrodes, and a **masking** film **shielding** the gaps among the transparent electrodes.

IC ICM H01L031-04
ICS G04B019-06; G04B037-18; G04C010-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST solar cell **masking** layer
IT Watches
(**masking** layers for **shielding** gaps among
transparent electrodes of solar cells in watches)
IT Solar cells
(solar cell apparatus containing **masking** layers for
shielding gaps among transparent electrodes of the cells)
IT 7631-86-9, Silica, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**masking** layers containing dispersed silica for
shielding gaps among ITO transparent electrodes of solar
cells in watches)
IT 1314-36-9, Yttria, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**masking** layers containing dispersed yttria for
shielding gaps among ITO transparent electrodes of solar
cells in watches)
IT 50926-11-9, Ito
RL: DEV (Device component use); USES (Uses)
(**masking** layers for **shielding** gaps among ITO
transparent electrodes of solar cells in watches)
IT 1314-61-0, Tantalum oxide (Ta2O5)
RL: MOA (Modifier or additive use); USES (Uses)
(tantalum oxide **masking** layers for **shielding**
gaps among ITO transparent electrodes of solar cells in watches)
IT 9011-14-7, PMMA 13463-67-7, Titania, uses
RL: MOA (Modifier or additive use); USES (Uses)
(titania dispersed **polymer** **masking** layers for
shielding gaps among ITO transparent electrodes of solar
cells in watches)

L120 ANSWER 42 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1996:675590 Document No. 125:302849 Epoxy (meth)acrylate
polymer compositions and cured products for black
masks of liquid-crystal display devices. Sasahara,
Kazunori; Sakai, Morio; Yokoshima, Minoru (Nippon Kayaku Kk, Japan).
Jpn. Kokai Tokkyo Koho JP 08217839 A2 19960827 Heisei, 6 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-52099 19950217.
AB Title cured products are obtained from compns. containing (A) epoxy
(meth)acrylates CH2:CR1C(:O)OCH2C(OH)HCH2O[C6H4XC6H4OCH2C(OM)HCH2]nC
6H4XC6H4OCH2C(OH)HCH2OC(:O)CR1:CH2 [R1 = H, Me; X = CH2, CMe2; M =
H, CH2C(OH)HCH2OC(:O)CR1:CH2; n = 0-20], (B) ethylenically unsatd.
compds., and (C) photopolymn. initiators. Thus, a color filter
using a black **mask** obtained from Epikote 4004P-Kayarad R
128H copolymer acrylate 20, Epikote 4001P-Ph glycidyl ether acrylate
copolymer acrylate 16, Kayarad R 114 7, Kayarad R 128H 16, Kayarad R
684 15, and isobornyl acrylate 26, Lucirin TPO 5, and C black 40
parts showed good light-**shielding** property and adhesion
strength.

IC ICM C08F290-06
ICS G02F001-1335
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 74
ST epoxy acrylate black **mask** display filter; methacrylate epoxy black **mask** display filter; light **shield** epoxy acrylate black **mask**
IT Optical filters
(cured epoxy (meth)acrylate **polymers** for black **masks** of liquid-crystal display devices)
IT Epoxy resins
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(acrylates, cured epoxy (meth)acrylate **polymers** for black **masks** of liquid-crystal display devices)
IT Optical imaging devices
(liquid-crystal, cured epoxy (meth)acrylate **polymers** for black **masks** of liquid-crystal display devices)
IT 182934-84-5P 183253-56-7P 183253-57-8P 183253-58-9P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(cured epoxy (meth)acrylate **polymers** for black **masks** of liquid-crystal display devices)

L120 ANSWER 43 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1996:628114 Document No. 125:263346 Planarization of spin-coated **surface** of electric insulator film. Sato, Junichi (Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP 08222550 A2 19960830 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-28527 19950216.
AB A substrate having an elec. insulator film formed by spin coating is subjected to a process including following successive steps; (1) forming an organic **polymer** layer on the insulator film, (2) selectively removing the **polymer** film on the **edge** by a rinsing **agent**, and (3) selectively removing the **exposed** elec. insulator film by etching. The **thick** part of the insulator film on the **edge**, which is formed as a result of spin coating, is removed. Photoresists and developers may be used as the organic **polymer** films and the rinsing **agents**, resp.
IC ICM H01L021-3065
ICS H01L021-312; H01L021-3205; H01L021-768
CC 76-3 (Electric Phenomena)
ST planarization spin coated elec insulator; org **polymer covering** planarization process; **thick edge** part removal insulator; photoresist developer planarizing process insulator
IT Etching
(for planarization of spin-coated elec. insulator film by selective removal of **thick edge** part)
IT **Polymers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)

(**masking agents**; for planarization of
spin-coated elec. insulator film by selective removal of
thick edge part)
IT Electric insulators and Dielectrics
(planarization of spin-coated elec. insulator film by selective
removal of **thick edge** part)
IT Coating process
(spin coating; planarization of spin-coated elec. insulator film
by selective removal of **thick edge** part)
IT Resists
(photo-, organic **polymer**; for planarization of spin-coated
elec. insulator film by selective removal of **thick**
edge part)

L120 ANSWER 44 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1996:616158 Document No. 125:249836 Light-**shielding** peel-off
masking films with lasting release properties. Ako,
Satoshi; Hashizume, Ken; Ito, Hidekazu (Kimoto Kk, Japan). Jpn.
Kokai Tokkyo Koho JP 08184954 A2 19960716 Heisei, 5 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1994-340385 19941227.
AB The title films are prepared by coating base films with compns. containing
coloring agents and binders comprising 2-4:8-6 (weight ratio) blends of
elastomers (A) and vinyl chloride **polymers** compatible with
A and comprising ethylene-vinyl chloride copolymer (I) or blends of
I with other vinyl chloride **polymers.** The films are
useful as **masking** films for making printing plates. A
transparent polyester film was coated with a composition containing I
(Sekisui PVC-VE) 11.2, nitrile rubber (Nipol 1432J) 4.8, carbon
black 1.0, silica 0.5, additive 0.5, MeCOEt 41.0, and toluene 41.0
parts and dried to give a **masking** film for panchromatic
photosensitive materials with coating elongation 300% (after 1 wk)
and 280% (after 1 yr) and exhibiting good release properties and
resilience after storage for 1 yr.
IC ICM G03F001-06
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 39
ST light **shielding masking** release film; vinyl
chloride **polymer** coated **masking** film; nitrile
rubber coated **masking** film; printing platemaking
masking film release property
IT Rubber, nitrile, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(Nipol 1432J, binder; for manufacture of light-**shielding**
peel-off **masking** films with lasting release properties)
IT Polyesters, uses
RL: PEP (Physical, engineering or chemical process); PRP
(Properties); TEM (Technical or engineered material use); PROC
(Process); USES (Uses)
(films, coated with vinyl chloride **polymer**-nitrile
rubber blend binders; light-**shielding** peel-off
masking films with lasting release properties)
IT Printing plates

(light-**shielding** peel-off **masking** films with
lasting release properties for manufacture of)

IT **Shields**
(light, light-**shielding** peel-off **masking**
films with lasting release properties)

IT Adhesive tapes
(**masking**, light-**shielding** peel-off
masking films with lasting release properties)

IT Parting materials
(release films, light-**shielding** peel-off
masking films with lasting release properties)

IT 25037-78-9, Ethylene-vinyl chloride copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(Sekisui PVC-PE, binder; for manufacture of light-**shielding**
peel-off **masking** films with lasting release properties)

IT 9003-22-9, Vinylite VYHH
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; for manufacture of light-**shielding** peel-off
masking films with lasting release properties)

IT 9003-18-3
RL: TEM (Technical or engineered material use); USES (Uses)
(rubber, Nipol 1432J, binder; for manufacture of light-
shielding peel-off **masking** films with lasting
release properties)

L120 ANSWER 45 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1996:376423 Document No. 125:99862 Planar compatible **polymer** technology for packaging of chemical microsensors. Munoz, J.; Bratov, A.; Mas, R.; Abramova, N.; Dominguez, C.; Bartroli, J. (Centro Nacional Microelectronica-CSIC, Bellaterra, 08193, Spain). Journal of the Electrochemical Society, 143(6), 2020-2025 (English) 1996. CODEN: JESOAN. ISSN: 0013-4651. Publisher: Electrochemical Society.

AB By applying special **thick** film photolithog. it is possible to realize a highly automative ion-sensitive field effect transistor (ISFET) packaging at the wafer level. In this paper two approaches based on photolithog. processing of encapsulating layers are presented. A lift-off method of com. thermo-curable encapsulants has been investigated, as well as direct photopolymn. of UV-curable encapsulant compns. containing either epoxy acrylate or polyurethane acrylate oligomers together with monomers and photoinitiators. Lift-off has been developed using either **thin** or **thick** photoresist sacrificial layers. The best compatibility implies **thick** photosensitive polyimide layers as a sacrificial photoresist together with the encapsulant material based on alumina-filled epoxy. However, better results are obtained by using photopatternable encapsulant **polymers** that permit application of **thin** or **thick** **polymer** layers on a wafer substrate containing ISFET chips. Windows over the gate region and **contact** pads are opened by **exposure** to UV light in a standard **mask** aligner system. Compns. based on epoxy acrylate oligomers are proved to be

more reliable in a packaging process. Lifetime of encapsulated micro-sensors for pH measurements is presented.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 36, 76

ST insulating ISFET packaging microelectronics sacrificial photoresist; **thick** film photolithog chem microsensor packaging; encapsulated microsensor pH ISFET insulating packaging

IT Adhesion
(adhesion between encapsulant **polymer** and sensor **surface** in ion-sensitive field effect transistor packaging at wafer level)

IT Siloxanes and Silicones, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(adhesion between encapsulant **polymer** and sensor **surface** in ion-sensitive field effect transistor packaging at wafer level)

IT Epoxy **resins**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(encapsulant material based on alumina-filled epoxy in ISFET packaging at wafer level)

IT Urethane **polymers**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(photopolymn. of UV-curable encapsulant compns. containing either epoxy acrylate or polyurethane acrylate oligomers)

IT Electronic device packaging
(planar compatible **polymer** technol. for packaging of chemical micro-sensors)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**thick** photosensitive polyimide layers as sacrificial photoresist in ISFET packaging at wafer level)

IT Epoxy **resins**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(acrylates, photopolymn. of UV-curable encapsulant compns. containing either epoxy acrylate or polyurethane acrylate oligomers)

IT Transistors
(field-effect, ion-selective, highly automative ion-sensitive field effect transistor packaging at wafer level by special **thick** film photolithog.)

IT Electric current
(leakage, leakage currents of samples of modified silicon oxide substrates **covered** with ISFET packaging materials)

IT Sensors
(miniaturized, planar compatible **polymer** technol. for packaging of chemical micro-sensors)

IT Lithography
(photo-, highly automative ion-sensitive field effect transistor packaging at wafer level by special **thick** film photolithog.)

IT Resists
(photo-, photoresist sacrificial layers in ISFET packaging at wafer level by special **thick** film photolithog.)
IT **Polymerization**
(photochem., photopolymn. of UV-curable encapsulant compns. containing either epoxy acrylate or polyurethane acrylate oligomers)
IT 13048-33-4
RL: NUU (Other use, unclassified); USES (Uses)
(diluting **agent**; adhesion between encapsulant **polymer** and sensor **surface** in ion-sensitive field effect transistor packaging at wafer level)
IT 7440-21-3, Silicon, uses 7631-86-9, Silica, uses 12033-89-5, Silicon nitride (Si_3N_4), uses
RL: DEV (Device component use); USES (Uses)
(highly automative ion-sensitive field effect transistor packaging at wafer level by special **thick** film photolithog.)
IT 97396-58-2, AZ4620 179095-27-3, HPR 506
RL: TEM (Technical or engineered material use); USES (Uses)
(photoresist; photoresist sacrificial layers in ISFET packaging at wafer level by special **thick** film photolithog.)
IT 118731-53-6, Probimide 348 126904-05-0, Selectilux HTR 3-200 153191-91-4, Probimide 408
RL: TEM (Technical or engineered material use); USES (Uses)
(resist; photoresist sacrificial layers in ISFET packaging at wafer level by special **thick** film photolithog.)
IT 919-30-2, 3-Triethoxysilyl-1-propylamine 2530-85-0
RL: TEM (Technical or engineered material use); USES (Uses)
(silylating **agent**; highly automative ion-sensitive field effect transistor packaging at wafer level by special **thick** film photolithog.)
IT 68651-40-1, Epo-Tek H 77 179095-22-8, Epo-Tek H 72
RL: TEM (Technical or engineered material use); USES (Uses)
(thermo-curable **polymer**; adhesion between encapsulant **polymer** and sensor **surface** in ion-sensitive field effect transistor packaging at wafer level)

L120 ANSWER 46 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1996:365664 Document No. 125:60194 Micromolding of **Polymers** in Capillaries: Applications in Microfabrication. Xia, Younan; Kim, Enoch; **Whitesides, George M.** (Department of Chemistry, Harvard University, Cambridge, MA, 02138, USA). Chemistry of Materials, 8(7), 1558-1567 (English) 1996. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

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AB This paper describes the use of micromolding in capillaries (MIMIC) to produce complex **polymeric** microstructures supported on different substrates and the applications of these microstructures in microfabrication. Patterned microstructures of several organic **polymers**-polyurethane, polyacrylate, and epoxy-were formed by molding in enclosed, continuous channels formed by **conformal contact** between a solid support and an elastomeric mold whose **surface** had been patterned with a

relief structure having micrometer-scale **dimensions.** A liquid prepolymer filled these channels by capillary action and was allowed to cure photochem. or thermally. The mold was then removed. **Polymeric** microstructures formed on films of Saran Wrap could be folded into different shapes, while these microstructures retained their forms; they could also be stretched uniaxially to generate microstructures having distorted forms. The patterned **polymeric** microstructures formed on SiO2, glass, and metals (Au, Ag, and Cr) could be used directly as resists in the selective etching of underlying substrates. Free-standing **polymeric** microstructures fabricated by lift-off were used as disposable **masks** to generate patterned microfeatures of metals on the **surfaces** of both planar and nonplanar substrates in two different procedures: (a) evaporation of gold through the **polymeric mask** supported on a substrate; (b) formation of patterned self-assembled monolayers (SAMs) by **exposure** of a silver film **covered** by a **polymeric mask** to hexadecanethiol (HDT) in vapor, followed by selective etching of the regions that were not **exposed** to HDT (i.e., the parts of the **surface protected** by the **mask**) in an aqueous solution containing K2S2O3 and K3Fe(CN)6/K4Fe(CN)6.

CC 38-2 (Plastics Fabrication and Uses)

ST lithog photoresist polyurethane capillary micromolding; etching **mask polymer** capillary micromolding; chrome **mask polymer** capillary micromoldin

IT Resists
(applications of micromolding of **polymers** in capillaries for microfabrication)

IT Epoxy **resins**, uses
Urethane **polymers**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(applications of micromolding of **polymers** in capillaries for microfabrication)

IT Molding of plastics and rubbers
(micro-, in capillaries; applications of micromolding of **polymers** in capillaries for microfabrication)

IT Rubber, silicone, uses
RL: DEV (Device component use); USES (Uses)
(di-Me, molds; applications of micromolding of **polymers** in capillaries for microfabrication)

IT 25085-99-8, Tra-Bond F 113 122392-14-7, Norland Optical Adhesive 60 178464-07-8, Tra-Bond F 114 178464-12-5, J 91 (polyurethane) 178464-17-0, NOA 71 178464-18-1, NOA 72 178464-19-2, NOA 73 178464-20-5, NOA 88
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(applications of micromolding of **polymers** in capillaries for microfabrication)

IT 2917-26-2, Hexadecanethiol
RL: NUU (Other use, unclassified); USES (Uses)

(applications of micromolding of **polymers** in
capillaries for microfabrication)
IT 7440-57-5, Gold, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(applications of micromolding of **polymers** in
capillaries for microfabrication)

L120 ANSWER 47 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1995:732479 Document No. 123:241808 Grating-type soft-focus filter for improving picture quality of liquid crystal displays. Fujisawa, Katsuya; Uetsuki, Masao (Kuraray Co., Ltd., Kurashiki, 710, Japan). Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers, 34(7A), 3583-8 (English) 1995. CODEN: JAPNDE. ISSN: 0021-4922. Publisher: Japanese Journal of Applied Physics.
AB A grating-type soft-focus filter was fabricated from a **polymer** film to transform the discontinuous picture of a liquid crystal display (LCD) into a continuous one. The soft-focus filter having a two-**dimensional** grating pattern with a sinusoidal cross section was photochem. formed on the film by **proximity exposure** through a **photomask** to UV light. When the LCD **surface** was **covered** with the soft-focus filter, the output light beam from the LCD was transformed into mainly nine beams as a result of (0, 0)- to (±1, ±1)-order diffractions with nearly equivalent intensities. Thereby, the picture discontinuity caused by the black matrix of the LCD was removed at a small expense of picture contrast.
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST liq crystal display **polymeric** focus filter
IT 122988-56-1, 2-Butenyl methacrylate-glycidyl methacrylate-methyl methacrylate **copolymer**
RL: DEV (Device component use); USES (Uses)
(photoreactive **polymer** for grating-type focus filter
for liquid crystal displays)
IT 3770-82-9, 3-Benzoylbenzophenone
RL: MOA (Modifier or additive use); USES (Uses)
(photoreactive **polymer** for grating-type focus filter
for liquid crystal displays)

L120 ANSWER 48 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1995:687290 Document No. 123:93329 Aqueous ophthalmic solutions containing vitamin A. Hozumi, Sakae; Koide, Misao (Lion Corp, Japan). Jpn. Kokai Tokkyo Koho JP 07118147 A2 19950509 Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-287624 19931022.
AB Aqueous ophthalmic solns., in which vitamin A (I) is solubilized, contain 250-1000 weight% (to I) nonionic surfactants and 5-50 weight% (to I) perfume ingredients chosen from menthol and its analogs. Alternatively, aqueous I ophthalmic solns. contain flavin-adenine dinucleotide (salts) and chondroitin sulfate (salts) and/or glycyrrhizic acid (salts). Alternatively, aqueous I ophthalmic solns.

are placed in containers of pigment-containing acrylonitrile-based **polymers**, which **shield** light at wavelength ≤380 nm. An ophthalmic solution containing I palmitate 0.025, HCO-60 (nonionic surfactant) 0.1, l-menthol 0.002, EDTA di-Na salt 0.005, NaH2PO4 0.22, Na2HPO4 1.2, propylene glycol 0.5, 10% benzalkonium chloride 0.05 g, and H2O to 100 mL was formulated. The odor of I was **masked** in the preparation

IC ICM A61K031-07
ICS A61K009-08; A61K047-26; A61K047-36

CC 63-6 (Pharmaceuticals)

ST ophthalmic vitamin A nonionic surfactant; menthol vitamin A FAD ophthalmic; chondroitin sulfate vitamin A ophthalmic; glycyrrhizate vitamin A ophthalmic soln; acrylonitrile **polymer** container ophthalmic soln

IT 107-13-1D, Acrylonitrile, **polymers**
RL: TEM (Technical or engineered material use); USES (Uses)
(aqueous vitamin A ophthalmic solns. containing nonionic surfactants and menthol)

L120 ANSWER 49 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1995:435902 Document No. 122:326534 Photosensitive adhesive composition. Yanagida, Yasuo; Murakami, Kazuo; Nogawa, Kyoko (Dainippon Ink & Chemicals, Japan). Jpn. Kokai Tokkyo Koho JP 06324486 A2 19941125 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-111599 19930513.

AB The title composition, used in the formation of a high resolution pattern comprising the steps of forming a photosensitive **thin** film with **surface** tackiness on a substrate, transferring and fixing an light-**shielding** solid **mask** on the film, irradiating the film with an active ray from the **mask side** to harden the **exposed** area, peeling the the **mask** off, and developing the film to remove the unexposed area, contain a ≥2-functional photosensitive **resin** having glass transition temperature (Tg) from -100 to 20° and mol weight ≥1000 and a tackiness-providing **agent** soluble in the **resin.** The composition is able to form a uniform **thin** coating on which metallic **masks** can be fixed, and provides high resolution resist patterns by uniform **exposure** process. Thus, a photosensitive adhesive composition comprised polypropylene glycol-tolylene diisocyanate-hydroxyethyl acrylate adduct (Tg -28°; mol. weight 6754), a reactant of rosin with 1,6-hexanediol diglycidyl ether, epoxy acrylate, pentaerythritol tetraacrylate, and a photoinitiator.

IC ICM G03F007-027
ICS G03F007-004; G03F007-34

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

ST tackiness providing **agent** adhesive photoresist

IT Rosin
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(modified, tackiness providing **agent**; adhesive
photoresist composition useful for making elec. circuits)
IT Urethane **polymers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-, acrylates, adhesive photoresist composition useful for
making elec. circuits)

L120 ANSWER 50 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1995:374774 Document No. 122:136180 Thermal-transfer films and
manufacture of colored plastic articles therewith. Yamanaka,
Tsuneyuki; Mori, Fujio; Fujioka, Hitoshi (Nissha Printing, Japan).
Jpn. Kokai Tokkyo Koho JP 06270564 A2 19940927 Heisei, 9 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-90872 19930324.
AB Title transfer sheets comprise releasable base films, patterned
masking layers (A), and transparent colored ink layers (B;
covering the **masking** layers), optionally with top adhesive
layers. Light-transparent plastic [e.g., poly(butylene
terephthalate)] articles are colored by hot pressing with the above
sheets, peeling off the base films, covering with thermal-transfer
dye-containing light-**shielding** inks (C), heating, and removing
the A, B, and C layers. A dispersed black dye-containing aqueous acrylic
resin solution was used to form the C layer.
IC ICM B41M005-40
ICS B41M001-30; B41M003-12; B41M005-035
CC 42-2 (Coatings, Inks, and Related Products)
Section cross-reference(s): 74
IT Acrylic **polymers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(light-**shielding** black dye-containing inks; manufacture of
colored plastic moldings with thermal-transfer sheets)
IT Inks
(light-**shielding** inks in manufacture of colored plastic
moldings with thermal-transfer sheets)

L120 ANSWER 51 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1995:326954 Document No. 122:226607 Microloading effect in highly
selective SiO2 **contact** hole etching employing inductively
coupled plasma. Fukasawa, Takayuki; Kubota, Kazuhiro; Shindo,
Haruo; Horiike, Yasuhiro (Dep. Electrical Eng., Hiroshima Univ.,
HIroshima, 724, Japan). Japanese Journal of Applied Physics, Part
1: Regular Papers, Short Notes & Review Papers, 33(12B), 7042-6
(English) 1994. CODEN: JAPNDE. ISSN: 0021-4922. Publisher:
Japanese Journal of Applied Physics.
AB The highly selective SiO2 etching achieved in the downstream region
of the inductively coupled plasma (ICP) employing C4F8+H2 was
studied regarding **polymer** film deposition characteristics.
Polymer deposition into as etched 0.5 μm holes at
floating potential showed an overhang feature with C4F8 alone and a
conformal one with C4F8+30%H2. When as-etched 0.5 μm
holes were subjected to C4F8+30% H2 plasma, the film
thickness on **bottom surfaces** increased
rapidly with increasing self-bias voltages. This result

demonstrated that high selectivity in holes less than 0.8 μm was achieved by deposition of resputtered film on the **side** wall onto the **bottom.** To analyze the **bottom** Si **surface** in deep holes, a simulated experiment was also performed using a capillary plate with 10 μm.vphi. (aspect ratio 40); the Si **surface masked** by the plate was **exposed** to plasma, then the Si **surface** was measured by X-ray photoemission spectroscopy (XPS). Etching occurred on the Si **surface covered** by the fluorine-rich **polymer** in C4F8 alone, and carbon-rich film was deposited on the Si **surface** with addition of 30%H2. The latter explains the origin of high selectivity.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

L120 ANSWER 52 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1995:9847 Document No. 122:11317 **Surface** contamination on LDEF **exposed** materials. Hemminger, C. S. (Aerosp. Corp., El Segundo, CA, 90245, USA). NASA Conference Publication, 3162(LDEF MATERIALS WORKSHOP '91, PT. 1), 159-74 (English) 1992. CODEN: NACPDX. ISSN: 0191-7811.

AB XPS has been used to study the **surface** composition and chemical of **Long** Duration **Exposure** Facility (LDEF) **exposed** materials including silvered Teflon (Ag/FEP), Kapton, S13GLO paint, quartz crystal monitors (QCMs), carbon fiber/organic matrix composites, and carbon fiber/Al alloy composites. In each set of samples, silicones were the major contributors to the mol. film accumulated on the LDEF-**exposed surfaces**. All **surfaces** analyzed have been contaminated with Si, O, and C; most have low levels (<1 atom %) of N, S, and F. Occasionally observed contaminants included Cl, Na, K, P, and various metals. Orange/brown discoloration observed near vent slots in some Ag/FEP blankets were higher in carbon, sulfur, and nitrogen relative to other contamination types. The source of contamination has not been identified, but amine/amide functionalities were detected. It is probable that this same source of contamination accounts for the low levels of sulfur and nitrogen observed on most LDEF-**exposed surfaces.** XPS, which probes to a depth of 50-100 Å, detected the major sample components underneath the contaminant film in every anal. This probably indicates that the contaminant overlayer is patchy, with significant areas **covered** by less than 100 Å of mol. film. Energy-dispersive x-ray spectroscopy (EDS) of LDEF-**exposed surfaces** during secondary electron microscopy (SEM) of the samples confirmed contamination of the **surfaces** with Si and O. In general, particulates did not develop from the contaminant overlayer on the **exposed** LDEF material **surfaces.** However, many SiO2 submicron particles were seen on a **masked edge** of an Ag/FEP blanket. In some cases, such as the carbon fiber/organic matrix composites, interpretation of the contamination data was hindered by the lack of good laboratory controls.

Examination of laboratory controls for the carbon fiber/Al alloy composites showed that preflight contamination was the most significant factor for all the contaminants generally detected at < 1 atom %, or detected only occasionally (i.e., all but Si, O, and C). Flight-control **surfaces**, including sample backsides not **exposed** to space radiation or atomic oxygen flux, have accumulated some contamination on flight (compared to laboratory controls), but exptl., the LDEF-**exposed surface** -contamination levels are generally higher for the contaminants Si and O. For most materials analyzed, Si contamination levels were higher on the leading-**edge surfaces** than on the trailing-**edge surfaces.** This was true even for the composite samples where considerable atomic oxygen erosion of the leading-**edge surfaces** was observed by SEM. It is probable that the return flux associated with atmospheric backscatter resulted in enhanced deposition of silicones and other contaminants on the leading-**edge** flight **surfaces** relative to the trailing **edge.** Although the Si concentration data suggested greater on-flight deposition of contaminants on the leading-**edge surfaces**, the XPS analyses did not conclusively show different relative total **thicknesses** of flight-deposited contamination for leading- and trailing-**edge surfaces.** It is possible that atomic-oxygen reactions on the leading **edge** resulted in greater volatilization of the carbon component of the deposited silicones, effectively **thinning** the leading-**edge**-deposited overlayer. Unlike other materials, **exposed polymers** such as Kapton and FEP-type Teflon had very low contamination on the leading-**edge surfaces.** SEM evidence showed that undercutting of the contaminant overlayer and damaged **polymer** layers occurred during atomic oxygen erosion, which would enhance loss of material from the **exposed surface.**

CC 37-5 (Plastics Manufacture and Processing)

ST **long** duration **exposure** facility **polymer** ; **surface** contamination LDEF plastic composite

IT Fluoropolymers
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed**)

IT Polyacetylenes, properties
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed** carbon fiber-reinforced)

IT Carbon fibers, properties
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed** polyacetylenes reinforced with)

IT **Polymer** morphology
(of LDEF-**exposed** plastics)

IT **Polymer** degradation
(ablative, **Surface** contamination on LDEF-**exposed polymers**)

IT Carbon fibers, properties
RL: PRP (Properties)
(graphite, **Surface** contamination on LDEF-**exposed** alloys reinforced with)
IT Polyimides, properties
RL: PRP (Properties)
(polyether-, **Surface** contamination on LDEF-**exposed**)
IT Polyethers, properties
RL: PRP (Properties)
(polyimide-, **Surface** contamination on LDEF-**exposed**)
IT 25036-53-7, Kapton 25038-81-7, Pyromellitic dianhydride-4,4'-oxydianiline **copolymer**
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed**)
IT 7440-22-4, Silver, properties
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed** FEP-containing)
IT 12616-84-1 12630-00-1, AA 201
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed** carbon fiber-reinforced)
IT 1312-76-1, Potassium silicate 1314-13-2, Zinc oxide, properties
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed** pigments containing)
IT 7631-86-9, Silicon dioxide, properties
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed** plastics as a function of contamination via)
IT 17778-80-2, Atomic oxygen, properties
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed** plastics in **contact** with)
IT 1312-43-2, Indium oxide 1314-98-3, Zinc sulfide, properties 1344-28-1, Aluminum oxide 7429-90-5, Aluminum, properties
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed** quartz crystals containing)
IT 25067-11-2, FEP
RL: PRP (Properties)
(**Surface** contamination on LDEF-**exposed** silver-containing)

L120 ANSWER 53 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1994:469536 Document No. 121:69536 Light **shielding** **mask** film. Tono, Katsuhiko; Shimizu, Kunio (Konishiroku Photo Ind, Japan). Jpn. Kokai Tokkyo Koho JP 05224391 A2 19930903 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-57087 19920207.

AB The title **mask** film has, on a transparent plastic support, a light **shielding** releasing layer containing a colorant and ≥1 compound selected from alc. soluble polyamides, ethylene-acrylic acid copolymers, and ionomers. The **mask** film shows superior releasability and cutting property.
IC ICM G03F001-06
ICS B32B007-02; B32B007-06
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST light **shielding mask** film releasing layer
IT **Photomasks**
(film, light **shielding** releasing layer for)
IT Acrylic **polymers**, uses
Ionomers
Polyamides, uses
RL: USES (Uses)
(light **shielding** releasing layer using, for **photomask**)
IT 9010-77-9 25053-13-8, Ultramid 1C
RL: USES (Uses)
(light **shielding** releasing layer using, for **photomask**)

L120 ANSWER 54 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1991:410407 Document No. 115:10407 Manufacture of light-**shielding polymer** film and its laminate for glass. Nakada, Yasushi; Ochiai, Yukio (Sekisui Chemical Co. Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 02035401 A2 19900206 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-187189 19880726.
AB Title film is prepared by UV-irradiating photochromic substance-containing **polymer** film through a pattern **mask** to give irreversible coloring of the substance. A film, prepared by casting 5% spironaphthooxazine-containing poly(Me methacrylate (MP 2000), was irradiated through an Al grid by 400 W high pressure UV lamp (400 W) to give a film having gray-colored grids. A laminate was prepared by laminating the film with Trinubin 326-containing cellulose triacetate **polymer** film by an acrylate adhesive.
IC ICM G02B005-00
ICS C03C027-12; C09K009-02
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 57
ST light **shielding polymethacrylate** coloring film; spironaphthooxazine prepn **polymer** coloring glass; cellulose triacetate laminated coloring substance
IT Plastics, laminated
RL: PREP (Preparation)
(colored, photochromic substance-containing **polymers**, preparation of, UV-irradiation for)
IT Coloring materials
(photochromic substance-containing **polymers**, preparation of, UV-irradiation for)
IT Photochromic substances

(**polymers** containing, photoirradn. of, for coloring
substance)
IT Vinyl acetal **polymers**
RL: PREP (Preparation)
(butyrals, photochromic substance-containing, coloring materials,
preparation of)
IT **Shields**
(light, photochromic substance-containing **polymers** for,
preparation of)
IT Glass, nonoxide
RL: PREP (Preparation)
(photochromic, photochromic substance-containing **polymers**,
preparation of, UV-irradiation for)
IT 9012-09-3, Cellulose triacetate **polymer**
RL: USES (Uses)
(laminates, with coloring materials, photochromic
substance-containing **polymer** as)
IT 27333-47-7
RL: USES (Uses)
(**polymers** containing, coloring materials, preparation of,
UV-irradiation for)
IT 5833-18-1P, Ethylbis(2,4-dinitrophenyl)acetate
RL: PREP (Preparation)
(**polymers**-containing, coloring materials, preparation of,
UV-irradiation for)

L120 ANSWER 55 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1989:487492 Document No. 111:87492 Light-**shielding**
masking films for printing plates. Maruyama, Hiroshi (Somar
Corp., Japan). Jpn. Kokai Tokkyo Koho JP 01062646 A2 19890309
Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
1987-217038 19870831.
AB Title films are composed of supports and light-**shielding**
peelable layers containing organic **polymers**, light-
shielding dyes or pigments, and organic fillers. The films
show good light-reflecting resistance and prevent abrasion of the
cutter blade. Thus, a 75-μm polyester film was coated with a
composition containing vinyl chloride-vinylidene chloride copolymer (average
d.p.
430), nitrile rubber, orange metal complex dye, siloxane,
crosslinked polystyrene (I, average particle size 6 μm), and MEK and
dried to give a title film with good blocking resistance, no light
reflection, and good antistatic properties, vs., poor resistance to
blocking, reflection, and poor antistatic properties, resp., for a
I-free controll.
IC ICM G03F001-04
ICS B32B007-02; B32B007-06; B32B027-08; B32B027-20
CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
ST light **shield** **masking** film; printing plate
masking film; polystyrene filler **masking** film
IT Dyes

Pigments
Polyesters, uses and miscellaneous
Rubber, nitrile, uses and miscellaneous
RL: USES (Uses)
(light-**shielding masking** films for printing plates containing)

IT Printing plates
(**masking** films for, light-**shielding**, organic fillers in)

IT 9011-06-7, Vinyl chloride-vinylidene chloride copolymer
RL: USES (Uses)
(coatings, containing organic fillers, for light-**shielding masking** films for printing plates)

IT 9003-53-6, Polystyrene
RL: USES (Uses)
(light-**shielding masking** films for printing plates containing)

IT 9003-18-3
RL: USES (Uses)
(rubber, light-**shielding masking** films for printing plates containing)

L120 ANSWER 56 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1987:124579 Document No. 106:124579 Method for making optical patterns. Toshida, Yoshi (Canon K. K., Japan). Jpn. Kokai Tokkyo Koho JP 61232248 A2 19861016 Showa, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-71689 19850404.

AB The title method comprises impregnating a porous glass with a photosetting material, **covering** the glass **surface** with a patterned **mask**, **exposing** the **surface** to a light source, and removing the unexposed portion of the substance from the glass. The photosetting material remaining in the glass forms an optical pattern. It may be carbonized by heating. The empty pores in the porous glass may be impregnated by a material capable of altering the characteristics of the glass by heat-treatment, after which the photosetting material is removed. The photosetting material comprises ≥1 compound, e.g., acrylic esters, methacrylic esters, their derivs., and acrylic ester **resin.** A photosensitivity-enhancing **agent** may be added. Thus, a porous glass plate (10 **mm** + 10 **mm** + 1 **mm**) was impregnated by a mixture of cyclohexyl acrylate 70, 2,2-bis(4-acryloxyethoxyphenyl)propane 30, and benzoin isopropyl ether 1 weight part, and **exposed** to UV with a **mask** having a 3 **mm**-diameter hole on the **surface.** After the unexposed mixture was extracted, the glass was heat-treated to obtain a dark, black cylindrical pattern (3 **mm** diameter) having a clean boundary and an precise **dimension.**

IC ICM C03C021-00
ICS C03B020-00; C03C011-00; G02B005-22; G03C005-00

ICA C03B008-00

CC 57-1 (Ceramics)

Section cross-reference(s): 74
ST optical pattern porous glass; acrylate **copolymer** optical pattern glass
IT Glass, oxide
RL: USES (Uses)
(porous, optical pattern formation on, by impregnation with acrylate **copolymer** and curing with **mask** and carbonizing)
IT 79-10-7D, epoxy derivs., **polymers** with neopentyl glycol diacrylate 2223-82-7D, **polymers** with acrylic acid epoxy derivs. 107435-96-1 107435-97-2
RL: USES (Uses)
(optical pattern formation by, on porous glass, by impregnating and curing with **mask** and carbonizing)

L120 ANSWER 57 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1987:41635 Document No. 106:41635 High-resolution liquid photopolymer coating patterns over irregular printed wiring board **surface** conductors. Sullivan, Donald F. (USA). U.S. US 4618567 A 19861021, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1985-690998 19850114.
AB Solder **masks** of high resolution are obtained by photoimaging with liquid photopolymers of pastelike consistency overlying irregular **surface topog.** (such as a printed circuit board) without air entrapment or starvation of the superimposed liquid **polymer.** This is achieved in 2 photosteps, the **1st** of which is partial **polymerization** by irradiation, with the **polymer surface exposed** to air. Only the portion unexposed to air, adjacent to the substrate **surface** is **polymerized**, and leaving the air **exposed surface** in the liquid state. This step uses an image with a greater **dimension** of opaque pattern area than that used in the subsequent step, which obtains high resolution by **surface contact** of the image with the **polymer.** The radiation source in each case is noncollimated. The resulting product, because of the partial **polymerization covering** the **surface**, produces no starvation over the rough **surface** when pressing the **2nd** image onto the **surface.** The liquid **polymer** layer **covers** rough **surfaces** without entrapment of air. By irradiation of the air-**exposed surface**, noise causing poor resolution is eliminated, such as from **surface** interface reflections and pinholes in opaque **surfaces**, etc. A layer of liquid photopolymer is disposed **upon** its permanent substrate cured through only part of its **thickness** adjacent the substrate, to leave a liquid tacky outer **surface.**
IC ICM G03C005-00
INCL 430311000
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

ST solder **mask** liq photopolymer
IT Soldering
(**masks** for, high-resolution, liquid photopolymer in fabrication of)
IT Photoimaging compositions and processes
(solder **mask** for, high-resolution, from liquid photopolymer)
IT **Polymers**, uses and miscellaneous
RL: USES (Uses)
(photo-, liquid, for solder **mask** fabrication)
IT Electric circuits
(printed, solder **masks** for fabrication of)

L120 ANSWER 58 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1986:543605 Document No. 105:143605 Etching method for polyamide layers. Matsuyama, Haruhiko; Shoji, Fusaji (Hitachi, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61083235 A2 19860426 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1984-204164 19841001.
AB High-precision etching of polyamide layers, with desired taper angle, is carried out regardless of the **thickness** of the layers, by avoiding the permeation of etching solution from the resist **surface** and controlling the rate of penetration of the solution between the etched material and the resist layer. The method consists of formation of a **1st** resist layer composed of a more readily etchable **polymer** on the polyamide layer, formation of a **2nd** layer of a less readily etchable resist layer, patterning on the **2nd** layer to make it an etching **mask**, and etching of the polyamide layer with a basic etchant. Thus, a 10-μ polyamide layer was formed on a glass plate by coating a polycondensing polyamidic acid varnish and curing. Then a 1-μ neg.-working **1st** photoresist layer based on a cyclyzed isoprene rubber and a 1-μ neg.-working **2nd** photoresist layer based on a poly(methylisopropenyl ketone) **resin** were successively formed. After patternwise UV **exposure**, the **2nd** layer was developed with cyclohexanone and the **1st** layer was developed with xylene. Etching of the polyamide layer was performed with a N2H4.H2O-ethylenediamine (7:3 volume) mixture in 50 min. After peeling the resist layers, a polyamide pattern having 45° section angle was obtained. Spattering with Permalloy to form a 2 μ-**thick** layer at flat **surface** gave a pattern having >70% step **coverage**, which showed good magnetic performance.
IC ICM C08J007-02
ICS G11B005-31; H01L021-306
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT Rubber, butadiene, uses and miscellaneous
Rubber, isoprene, uses and miscellaneous
RL: USES (Uses)
(etching **masks** from, in high-precision etching of polyamide layers)
IT 9003-17-2

RL: USES (Uses)
(rubber, butadiene; etching **masks** from, in high-precision etching of polyamide layers)
IT 9003-31-0
RL: USES (Uses)
(rubber, isoprene; etching **masks** from, in high-precision etching of polyamide layers)

L120 ANSWER 59 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1986:139324 Document No. 104:139324 Photoprinting process and apparatus for **exposing** photopolymers. Sullivan, Donald F. (USA). U.S. US 4544626 A 19851001, 8 pp. Cont.-in-part of U.S. Ser. No. 147,726. (English). CODEN: USXXAM. APPLICATION: US 1983-535294 19830923. PRIORITY: US 1980-147726 19800508.
AB The light **exposure** of a photopolymer photoresist layer coated on a printed circuit board through a **photomask** comprised of a **thin** flexible substrate carrying an image having an inner **surface** disposed toward the photoresist layer and an outer **surface** disposed toward a radiation source is comprised of the steps of excluding gases and air, which tend to inhibit the photohardening of the photoresist layer, from the **surface** of the photoresist layer by immersing the entire system in an inert transparent liquid medium (i.e., H_2O). The use of the liquid system reduces the amount of radiation necessitated to photoharden the photoresist and dissipates heat generated by the radiation in the **photomask**, thus extending its useful life. With the addition of a detergent, the liquid medium further serves as a release **agent**, thereby further preventing **polymer** residues separated from the photoresist layer from adhering to the **photomask.**
IC ICM G03C005-16
INCL 430311000
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST photopolymer photoresist **exposure** underwater system
IT Electric circuits
(integrated, **exposure** of photopolymer photoresist in fabrication of, submerged in transparent inert liqs. for **protection** of **photomasks** and increased photohardening speed)
IT Resists
(photo-, photopolymer, **exposure** of, submerged in transparent inert liqs. for increased photohardening speed and reduced **photomask** deterioration)

L120 ANSWER 60 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1986:65480 Document No. 104:65480 Emulsan: a case study of microbial capsules as industrial products. Shabtai, Josef; Pines, Ophry; Gutnick, David (George S. Wise Fac. Life Sci., Tel Aviv Univ., Ramat Aviv, 69928, Israel). Developments in Industrial Microbiology Series, 26, 291-307 (English) 1985. CODEN: DIMCAL. ISSN: 0070-4563.

AB Emulsan is a polyanionic-containing bioemulsifier produced by Acinetobacter calcoaceticus RAG-1. In early exponential phase, emulsan is located on the cell surface as a minicapsule comprising up to 20% of the cell dry weight As the cells approach stationary phase, the interaction of the **polymer** with the cell surface is weakened through the action of ≥1 enzyme, an esterase. Possible functions for the cell-associated bioemulsifier include phage receptor, **masking polymer** of cell-surface hydrophobic structures, and as an exocellular **shield** that enhances tolerance to toxic cations such as cetyltrimethyl ammonium bromide (CTAB). Mutants resistant to CTAB show enhanced production of emulsan. Expts. with mixed cultures demonstrated that cell-associated emulsan is responsible for CTAB tolerance. The cell-associated emulsion minicapsule confers a distinct advantage on the wild type growing on crude oil in sea water. Reconstitution of a phage receptor at an oil/water interface suggests that the **conformation** of cell-associated emulsan resembles its **conformation** at the surface of an oil droplet.

CC 10-1 (Microbial Biochemistry)

L120 ANSWER 61 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1986:59496 Document No. 104:59496 Transfer **mask** materials for sandblasting. (Asahi Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 60104939 A2 19850610 Showa, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-213473 19831114.

AB The title materials are composed of (1) a **mask** pattern layer for sandblasting comprising (i) 50-98 parts of an ethylenically unsatd. polyurethane having the formula R(ZZ1)nZR1 (Z = a urethane radical; Z1 = a polyether, polyester, polyether-polyester **block copolymer**, polydiene, polyene, or their mixture; R = CH2:CR2COZ2 where Z2 = (CH2)nO, (CH2CHMeO), (CH2CH2O); R2 = H, Me; m = 1-6; p, q = 1-15; R1 = CH2:CR2CO2Z2, R3O, R3OZ2; R3 = C1-8 alkyl; n = 1-10) (ii) 2-50 parts of an ethylenically unsatd. compound; (iii) a photosensitive **resin** composition containing a photopolymn. initiator 0.05-10 weight% of (i) + (ii), and (iv) a cured substance having a releasing resistance >300 g/cm2, an elongation at breaking >100%, and a 100% modulus <500 kg/cm2, and (2) a layer supporting (1), and (3) a maintaining layer which is placed between (1) and (2), bonded well to (1) but releasable from (2), and destroyable by sandblasting. The materials have sufficient resistance to sandblasting and are capable of being bonded without adhesive to and transferring fine patterns precisely to solid **surfaces.** Thus, a solution of cellulose acetate phthalate in MEK-cellosolve acetate was coated on a 22-μm polypropylene film to form a 2-μm layer; sep. a solution of Et cellulose in MEK was coated on a 75-μm polyester film to form an 8-μm layer. Polypropylene glycol adipate diol 39, polypropylene glycol containing 10% terminal ethylene oxide 39, and toluene diisocyanate 6 parts were reacted to give an NCO-terminated polyurethane which was treated with 2-hydroxypropyl methacrylate to obtain an unsat. polyurethane, which was then mixed with

polypropylene glycol monomethacrylate 20, diethylene glycol dimethacrylate 1.5, and 2,6-di-tert-butyl-p-cresol 0.1 part to give a photosensitive **resin** composition Then, a 10-**mm** glass plate **covered** with a pos. pattern film was laminated successively with the **1st**-mentioned film with its layer upside, a 0.3-**mm** Teflon spacer, a photosensitive **resin** layer, the **2nd**-mentioned film, and **covered** with a 10 **mm** glass plate. The obtained material was patternwise **exposed** to a high-pressure Hg arc through a pos. film and a glass plate and the **1st** -mentioned film removed without appreciable release resistance and release of cured **resin.** A transfer **mask**, obtained by washing out the unexposed **resin**, showed no release of cured **resin.** After the obtained **mask** was bonded to a 7-**mm** glass plate and the **2nd** -mentioned film peeled off, the plate was sandblasted using Alundum #180 in a 3.5 kg/cm2 air jet for 30 s to give a pattern. No release of the **mask** was observed

IC ICM G03C001-00
ICS B24C001-04; B44C001-16; G03C001-68; G03F007-00

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST patterning solid material sandblasting; **masking** solid material sandblasting; transfer **mask** material sandblast processing; sandblast processing **mask** photosensitive material

IT Sandblasting
(fine pattern production by, photosensitive materials for transfer **mask** production for)

IT Photoimaging compositions and processes
(for transfer **masks** for fine pattern production by sandblasting)

IT Marking
(of solid materials, by sandblasting, transfer **mask** materials for)

IT Polyesters, uses and miscellaneous
RL: USES (Uses)
(photoimaging materials with support from, for transfer **masks** for fine pattern production by sandblasting)

IT 128-37-0, uses and miscellaneous 142-90-5 2358-84-1 3290-92-4 9003-17-2D, hydroxy-terminated, **polymer** with toluene diisocyanate 9004-38-0 9004-57-3 26471-62-5D, **polymer** with hydroxy-terminated polybutadiene 39420-45-6 68992-74-5
RL: USES (Uses)
(photoimaging materials containing, for transfer **masks** for fine pattern production by sandblasting)

IT 9002-84-0
RL: USES (Uses)
(photoimaging materials with spacer from, for transfer **masks** for fine pattern production by sandblasting)

IT 9003-07-0
RL: USES (Uses)

(photoimaging materials with support from, for transfer **masks** for fine pattern production by sandblasting)

L120 ANSWER 62 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1986:51778 Document No. 104:51778 Selectively transparent sheets. Tabata, Hiroshi; Kai, Yasuaki (Nissan Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 60175002 A2 19850909 Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1984-31291 19840221.

AB Transparent sheets for automobiles are prepared by coating transparent sheets with photocurable adhesives, bonding light-sensitive resin films on selected areas, and irradiating through a **neg. mask** to form light-transmitting and light-**shielding** areas. Thus, a 1.5-mm polycarbonate sheet was etched on 1 side, coated on the other side to .apprx.10 μ with Loctite 350 (modified acrylate UV-curable adhesive), bonded on selected areas with 0.4-mm CF 83 (photosensitive nylon) film, irradiated with light through a **neg. mask**, developed in H2O at 30° and 5.7 kg/cm2 for 150-240 s, dipped in a urethane ink containing 78% carbon black and 6% matting agent, and dried to give a sheet with adhesion of substrate to film 69 kg/cm2.

IC ICM G02B005-00
ICS B32B007-02; G03C005-00; G03F007-00

CC 38-3 (Plastics Fabrication and Uses)

ST polycarbonate sheet transparency selective; acrylic **polymer** adhesive photocurable; nylon photosensitive **masking** sheet; adhesive photocurable **masking**; **masking** transparent sheet

IT Light-sensitive materials
(**polymers**, in selective **masking** of transparent plastic sheets)

IT Acrylic **polymers**, uses and miscellaneous
Polycarbonates
RL: USES (Uses)
(transparent sheets, selective opacification of)

IT Adhesives
(photocurable, for **masking** of transparent plastic sheets)

IT 68189-91-3
RL: TEM (Technical or engineered material use); USES (Uses)
(adhesives, photocurable, for **masking** transparent sheets)

IT 100040-47-9 100040-60-6
RL: USES (Uses)
(light-sensitive, for **masking** transparent sheets)

L120 ANSWER 63 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1986:43181 Document No. 104:43181 Image formation material. Taguchi, Takao; Kumagai, Koji; Kodaira, Takeo (Toppan Printing Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 60140236 A2 19850725 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-249734 19831227.

AB A material for metal image formation consists of a flexible support, a **thin** metal layer, and a photosensitive **polymer**

layer, which contains an ethylenic compound capable of radical **polymerization**, a **polymer** binder soluble in aqueous alkaline or acidic solution, a free radical-generating **agent**, and a triphenylmethane leuco dye. The material provides clear print-out images **upon exposure** and allows partial correction and modification without using a gray filter. Thus, an Al-laminated poly(ethylene terephthalate) film (Metalumy) was coated with a photosensitive composition containing Scriptset 520 5, pentaerythritol triacrylate 5, 2-(o-chlorophenyl)-4,5-diphenylimidazole dimer 1, 4,4-bis(diethylamino)benzophenone 0.5, leuco crystal violet 1, mercaptobenzothiazole 0.2, p-methoxyphenol 0.1, and 2-butanone 90 parts to form a 2-μ layer. A 2-μ **protective** layer was then formed thereon by coating a composition containing poly(vinyl alc.) 5, poly(vinylpyrrolidone) 5, Niogen EA 140 (**surfactant**) 0.2, p-nitrophenol 0.01, ethylene glycol mono-Et ether 0.5, and H2O 50 parts. The resultant material was then **exposed** through a halftone original to obtain a blue neg. image. Immersion in 0.3% aqueous KOH for 10 s, rubbing with a sponge, and immersion in an aqueous solution containing HNO3, CuCl2, ammonium acid fluoride, and Niogen 140 gave an Al metal image having high resolution, high contrast, and an image d. of 3.0.

IC ICM G03C005-00
ICS G03C001-00
ICA G03F001-00
CC 74-4 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT **Photomasks**
(photosensitive **resin** laminates for preparation of)
IT 7429-90-5, uses and miscellaneous
RL: USES (Uses)
(laminate containing photosensitive **resin** layer and, for **photomask** preparation)
IT 90-93-7 90-94-8 129-73-7 149-30-4 603-48-5 1965-19-1 2382-96-9 3524-68-3 6143-80-2 15625-89-5 58206-31-8
RL: USES (Uses)
(photosensitive compns. containing, for **photomask** preparation)
IT 100-02-7, uses and miscellaneous 9002-89-5 9003-39-8 9036-19-5
RL: USES (Uses)
(print-out photoimaging materials for metal image formation with **protective** layer containing)

L120 ANSWER 64 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1985:604541 Document No. 103:204541 Resist imaging method. Koibuchi, Shigeru; Isobe, Asao; Makino, Daisuke (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 60138922 A2 19850723 Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-248784 19831227.

AB The resist image is formed by **contact exposure** and development of a material consisting of a base, a layer of photosensitive composition containing phenol **resin**, and an overcoat layer containing water-soluble **polymer.** The overcoat layer **protects** the high-resolution (.apprx.1 μm) photosensitive layer from damage by **contact exposure**, without

lowering the resolution Thus, a resist composition containing
4'-azidobenzal-2-methoxyacetophenone 1 and poly(p-vinylphenol) 5
parts (**Resin** M) in cyclohexanone was coated on an Al-
covered Si wafer to obtain a 1-μm photosensitive layer,
which was overcoated with 3% aqueous poly(vinyl alc.) (Denka Poval B-03)
to obtain a 0.1-μm layer. The material was tested by 50 cycles
of **contact** with and detachment from an actual
photomask. The number of cracks found in 50 5-**mm**
squares was 2. The number was 9 when the overcoat layer was absent.
UV **exposure** and development of the material in Me4NOH
solution gave a fine pattern having resolution as good as that of the
control material.

IC ICM H01L021-30
ICS G03F007-20

CC 76-3 (Electric Phenomena)
Section cross-reference(s): 74

ST photoresist hydrophilic **protective** layer; resist fine
pattern **surface protection**; photolithog
patterning resist **protective** layer;
azidobenzalmethoxyacetophenone photoresist; polyvinyl
azidobenzalmethoxyacetophenone photoresist; vinylphenol
polymer azidobenzalmethoxyacetophenone photoresist; vinyl
alc **polymer protection** photoresist;
semiconductor device fabrication photoresist

IT Semiconductor devices
(photoresist **masks** for fabrication of, having
water-soluble **polymer protective** layers)

IT Resists
(photo-, **protective** layers for, from water-soluble
polymers)

IT 59269-51-1 94413-94-2
RL: USES (Uses)
(photoresists containing, with PVA **protective** layer)

IT 9016-83-5 75742-13-1 81458-41-5
RL: USES (Uses)
(photoresists containing, with water-soluble **polymer**
protective layers)

IT 9002-89-5 9003-01-4
RL: USES (Uses)
(**protective** layers from, on photoresists)

L120 ANSWER 65 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1985:586931 Document No. 103:186931 **Masking** sheets for
photolithographic plates. (Kotobuki Seihan Printing Co., Ltd.,
Japan). Jpn. Kokai Tokkyo Koho JP 60090337 A2 19850521 Showa, 4 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-198447 19831024.

AB **Masking** sheets for use in **exposure** of
photolithog. plates are prepared by impregnation of 70-180 μm pulp
paper sheets with an emulsion of an acrylic resin, poly(vinyl
acrylate), or an acrylic monomer-vinyl acetate copolymer, optionally
added with acrylonitrile-butadiene or styrene-butadiene rubber, so
that the volume ratio of the paper base-**polymer** becomes

(95-70):(5-30). The **masking** sheets are **dimensionally** stable and **widely** used because of antistatic properties, durability, **shielding** power to UV, transmittance to visible light, and economy. Thus, a 180-μm **long**-fiber pulp paper sheet was impregnated with a 3:1 acrylic monomer-vinyl acetate copolymer-acrylonitrile-butadiene rubber latex mixture to obtain a volume ratio of 70:30. The obtained sheet was dyed with Sudan III. The sheet was opaque to 350-600 nm light.

IC ICM G03F001-04
ICA B32B025-06; B32B027-04; B32B027-10
CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST photolithog plate **photomask** paper **polymer**; **polymer** impregnated paper photolithog **photomask**; **photomask** photolithog plate UV **shielding**
IT **Photomasks**
(acrylic resin-impregnated paper with dye layer as, for photolithog. plate fabrication)
IT Rubber, butadiene, uses and miscellaneous
RL: USES (Uses)
(acrylonitrile-, paper impregnated with, with dye layer and **masking** sheet for photolithog. plate **exposure**)
IT Lithographic plates
(**photo-**, **masking** sheets for **exposure** of, acrylic resin-impregnated paper with dye layer as)
IT Acrylic **polymers**, uses and miscellaneous
RL: USES (Uses)
(vinyl acetate-containing, paper impregnated with, with dye layer as **masking** sheet for photolithog. plate **exposure**)
IT 85-86-9
RL: USES (Uses)
(acrylic resin-impregnated paper dyed with, as **masking** sheet for photolithog. plate **exposure**)
IT 108-05-4D, **polymers** with acrylic monomers
RL: USES (Uses)
(paper impregnated with, as **masking** sheet for photolithog. plate **exposure**)
IT 9003-17-2
RL: USES (Uses)
(rubber, butadiene; acrylonitrile-, paper impregnated with, with dye layer and **masking** sheet for photolithog. plate **exposure**)

L120 ANSWER 66 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1984:601542 Document No. 101:201542 Fine-image **photomask.** (Tokyo Ohka Kogyo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 59050444 A2 19840323 Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1982-159683 19820916.
AB A fine-image **photomask** is coated with an elastic **polymer thin** film. The use of the coated **photomask** prevents contamination or scratch on the

surface and gives higher resolving power. Thus, a Cr **photomask** was coated with a xylene solution of a butadiene-styrene rubber (Tufprene, from Asahi Chemical Ind. Co., Ltd.) and treated with a CF4 plasma. This **photomask** was in **contact** with a neg. photoresist (OMR 85, from Tokyo Ohka Kogyo Co., Ltd.) that was coated on a wafer, **exposed** to UV, developed, and rinsed to give an image of 1.5 μ resolution vs. 2.0 μ for a control using an uncoated **photomask.**

IC G03F001-00; H01L021-30

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST **photomask protective polymer** layer

IT Rubber, butadiene-styrene, uses and miscellaneous
RL: USES (Uses)
(chromium **photomasks** coated with, for reduced scratch and higher image resolution)

IT Resists
(photo-, fine-image, **polymer protective** layer for)

IT 24937-78-8
RL: USES (Uses)
(**photomask** coated with, for reduced scratch and higher image resolution)

IT 7440-47-3, uses and miscellaneous
RL: USES (Uses)
(**photomask**, coated with butadiene-styrene rubber layer for reduced scratch and higher image resolution)

IT 9003-55-8
RL: USES (Uses)
(rubber, butadiene-styrene; chromium **photomasks** coated with, for reduced scratch and higher image resolution)

L120 ANSWER 67 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1981:55931 Document No. 94:55931 Flat-bed printing plates. Cho, Kenji; Takamizawa, Minoru; Inoue, Yoshio; Annaka, Gunma (Dai Nippon Printing Co., Ltd., Japan; Shin-Etsu Chemical Industry Co., Ltd.). Ger. Offen. DE 3012953 19801009, 27 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1980-3012953 19800402.

AB Printing plates requiring no dampening during a **long** press life carry a layer of a photohardenable organosiloxane containing maleimino or acryloxy groups between a metal, plastic, or paper support and a flexible, strippable, UV-transmitting **top** film. A 0.2-10 μ adhesive coating on the support contains a desensitizer, such as 1-40% dimethyl-4-methoxybenzylidene malonate, and has a higher affinity for the unhardened **polymer**, whereas the linkage of a photohardenable **resin** to the film adheres more strongly to the hardened siloxane due to 0.5-6% of a sensitizer such as Ph2CO. Therefore, after the UV **exposure** through a **neg. mask** and the **top** sheet, stripping off the latter carries the photohardened polysiloxane with it, while the residual siloxane on the plate is hardened by an overall UV **exposure** to an ink-repellent relief. Thus, a

INCL 096036200
CC 77-1 (Magnetic Phenomena)
ST bubble domain device manuf; semiconductor pattern double resist; photoresist double layer **masking** circuit
IT Semiconductor devices
(metallic pattern for, single-level **masking** process with two pos. photoresist layers in deposition of)
IT Magnetic domain
(bubble, devices, single-level **masking** process with two pos. photoresist layers in deposition of metallic patterns for)
IT Electric circuits
(integrated, metallic pattern for, single-level **masking** process with two pos. photoresist layers in deposition of)
IT Resists
(photo-, double layers of pos., in single-level **masking** process for manufacture of magnetic-bubble devices)

L120 ANSWER 69 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1978:451454 Document No. 89:51454 Photographic method. Crivello, James V. (General Electric Co., USA). U.S. US 4081276 19780328, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1976-733235 19761018.
AB A method for forming an image or design on the **surface** of a support is described. The **surface** of the support is **1st** treated with a photoinitiator, such as triphenylsulfonium hexafluoroantimonate, a **mask** placed on the support, and the support **exposed** to radiant energy resulting in the formation of a cationic **polymerization** catalyst on the **exposed** support **surface.** The support can then be **contacted** with a cationically **polymerizable** organic material, such as an epoxy organic film. Thus, a glass plate was coated with a 10% solution of triphenylsulfonium hexafluoroarsenate in CHCl3. The solvent was removed by drying leaving a **thin** film of photoinitiator on the plate. The sensitized plate was **covered** with a perforated **mask** and irradiated for 20 s by using a G.E. H3T7 medium-pressure Hg arc lamp. The **exposed** plate was then **contacted** for 2 min to a wet film of 4-vinylcyclohexene dioxide. The plate was then washed with C6H6 which showed a neg. image of the perforated **mask** in the form of a raised crosslinked film of the **polymerized** 4-vinylcyclohexane dioxide.
IC G03C005-00
INCL 096035100
CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic Processes)
ST photoimaging process photoinitiator **exposure**
IT Epoxy **resins**, uses and miscellaneous
RL: USES (Uses)
(in photoimaging process involving **surface** treatment with photoinitiator)
IT Photoimaging compositions and processes

(photopolymerizable, with **surface** treatment by photoinitiator)

IT 106-87-6 926-65-8 2426-07-5 37348-52-0
RL: USES (Uses)
(in photoimaging process involving **surface** treatment with photoinitiator)

IT 57840-38-7 57900-42-2
RL: USES (Uses)
(photoinitiator, **surface** treatment with, in photoimaging process)

L120 ANSWER 70 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1977:94679 Document No. 86:94679 High-resolution sputter etching. Fraser, David B.; Lou, David Y. K. (Bell Telephone Laboratories, Inc., USA). U.S. US 3975252 19760817, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1975-558489 19750314.

AB A complicated arrangement of a **masked** 5-layer sheet assembly is described for obtaining an elec. conductivity pattern of maximum sharpness of a metal such as Au on a substrate such as Mylar [9003-68-3] film by removing metal from **unmasked** areas only by perpendicular ion bombardment through openings in **masks** of submicron **thickness**, thus avoiding undercutting by etch solns. The sputtering for such removal is done in a halocarbon atmospheric, generally at 0.1-50.0 mtorr, such as CCl_4 to $CHCl_2F$, with a large range of radio-frequency activation power. A 3-layer conductivity pattern is formed on a noncond. substrate. The outer coating was a sputter-resist, 0.3 μ **thick**, then a **thin** Ti layer, under it a **thicker** Au layer, followed by **thin** layers of Pt and Ti on Mylar. The sputter-etching in a halocarbon atmospheric of low pressure removed the outer resist and **unprotected 1st** Ti, leaving only the **protected** Ti pattern, then the sputter atmospheric was changed to Ar containing >10% air, and the etching removed Au and Pt from **unprotected** areas, while forming a **protective** oxide coating on the Ti **exposed** on the Au pattern, as well as the Ti-coated areas not **covered** by the pattern. Finally the **exposed** Ti **surfaces** were almost entirely removed by sputter etching in a halocarbon atmospheric, but the final cleaning of the remaining Au pattern was done chemical by an HBF_4 [16872-11-0] aqueous solution The process can also be used for simpler 3-layer assemblies.

IC C23C015-00
INCL 204192000
CC 56-5 (Nonferrous Metals and Alloys)
Section cross-reference(s): 73, 76

IT 7440-06-4, uses and miscellaneous 7440-32-6, uses and miscellaneous 7440-57-5, uses and miscellaneous
RL: USES (Uses)
(composite with platinum and gold on **polymer** film, sputter-etching of **masked**, for lasers and transistors)

IT 16872-11-0
RL: RCT (Reactant); RACT (Reactant or reagent)

(etching by, of gold pattern on **polymer**-titanium composite for lasers and transistors)

L120 ANSWER 71 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1976:37322 Document No. 84:37322 **Photomask** for printing plate manufacture. Kato, Hirohisa; Tamai, Masayoshi; Ikari, Kunihiro (Tokyo Shibaura Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 50059027 19750522 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1973-107741 19730925.

AB In a material for preparing **photomasks** which consists of a transparent support, a transparent precoat, a photosensitive layer consisting of a dispersion of a diazonium compound and an azo coupling **agent** in a **resin** binder, and a **cover** layer. The **cover** layer is a crosslinkable layer of ≥1 **resin** selected from a urea-type **resin**, a melamine-type **resin**, or a guanamine **resin**. This **photomask** material is especially useful during the preparation of printing plates. Thus, a glass plate (smoothness 1 μ/inch, 62.5 + 62.5 + 2.0 mm) was cleaned with a CeO_2-chomic acid cleaning solution, C_2HCl_3, Me_2CO, and MeOH, then undercoated with a liquid containing Desmodur N-75 (urethane **resin**) 100, A-187 (silane coupling **agent**) 1, ethylene glycol acetate monoethyl ether 100, and xylene 100 g. A photosensitive liquid obtained with a 30:30:25:15 volume ratio mixture of MeOH, Me_2CO, Me Cellosolve, and Bu Cellosolve 187, 2,5-dibutoxy-4-morpholinobenzenediazonium tetrafluoroborate 13, bis(2,4-dihydroxyphenyl) sulfide 15 and Tenaito Buchireto (cellulose butyrate) 13 g was coated and dried at 70° for 10 min. The photosensitive layer was then overcoated with a liquid obtained from hexamethoxymethylmelamine (melamine-type **resin**) 20, p-$MeC_6H_4SO_3H$ 0.2, xylene 8.5, and BuOH 1k g and dried at 90° to give a crosslinked **surface** coating. The material was then **exposed** through a vapor deposited Cr test **mask** with a 200-W Hg lamp for 20 min and developed in an NH_3 atmospheric to produce a **photomask** whose **surface** was unaffected on wiping with an alc. soaked cloth and showed a **surface** hardness (pencil hardness) of 4H.

IC G03C; B41C

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic Processes)

ST **photomask** crosslinkable **surface** coating;
mask photo surface coating;
polymer coating **surface mask**

IT Urethane **polymers**, uses and miscellaneous
RL: PREP (Preparation)
(coatings, transparent underlayer, in photosensitive materials for **photomask** preparation)

IT Light
(**masks** for, diazonium compound-based photosensitive compns. for manufacture of, with crosslinkable **top** layer for improved **surface** hardness)

IT Diazonium compounds

RL: USES (Uses)
(photosensitive compns. containing couplers and, with crosslinkable **top** layers for **photomasks** with improved **surface** hardness)

IT 57-13-6D, Urea, derivs., **polymers** 108-78-1D, 1,3,5-Triazine-2,4,6-triamine, derivs., **polymers** 504-08-5D, 1,3,5-Triazine-2,4-diamine, derivs., **polymers**
RL: USES (Uses)
(coating, crosslinkable, on photosensitive materials for **photomasks** for improved **surface** hardness)

IT 3089-11-0
RL: USES (Uses)
(coatings, crosslinkable, on photosensitive compns. for **photomasks** with improved **surface** hardness)

IT 50543-78-7
RL: USES (Uses)
(photosensitive compns. containing bis(dihydroxyphenyl) sulfide and, with crosslinkable **top** layers for **photomasks** with improved **surface** hardness)

IT 97-29-0
RL: USES (Uses)
(photosensitive compns. containing dibutoxymorpholinobenzene diazonium tetrafluoroborate and, with crosslinkable **top** layers for **photomasks** with improved **surface** hardness)

L120 ANSWER 72 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1972:29097 Document No. 76:29097 Plating or etching treatment to improve the adhesion of **masking** patterns on metallic **surfaces.** Burock, Russell; Switsky, David M.; Whitner, Robert A. (Western Electric Co., Inc.). Ger. Offen. DE 2108327 19711021, 9 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1971-2108327 19710222.

AB The adhesion of organic **masking** films, used for selective coating of metallic **surfaces** of microelectronic components, such as switches, is improved by using an intermediate SiO_2 or Si_3N_4 layer between the film and the metal. After the microelectronic components are plated with conductive metals on **surfaces unprotected** by the film, the intermediate layer can be easily removed by etching with a HF-containing solution Thus, an integrated microswitch was made on a Si base. A Pt-silicide **contact** layer was deposited in a recessed area of the base, and this layer was then surrounded by a layer of SiO_2. The SiO_2 layer was then coated with a layer of Si_3N_4. Both the Si_3N_4 and the Pt-silicide layers were then spray-coated with a 0.05-μ- **thick** Ti layer, and this layer was subsequently spray-coated with a 0.15-μ- **thick** Pt layer. A portion of the Pt layer which was not required in the conductive switch portion was removed by treatment with a solution containing H_2O 5, HNO_3 (concentrated) 4 and HCl (concentrated) 1 part. The switch component was then coated at predetd. locations with a coating of SiO_2 serving as intermediate

terpolymer of hexamethylene, diaminoadipate, hexamethylenediamine sebacate, and ε-caprolactam 10 parts, with N,N'-methylenebisacrylamide 1.5 as crosslinking **agent**, and benzoin iso-Pr ether 0.2 as initiator in EtOH 100 parts was the basic adhesive mixture, 1 part of which was diluted with 10 parts EtOH and with 0.5% hydroquinone as desensitizer to be applied as 0.5 μ coating to a 100 μ Al support, while 0.2% benzoin iso-Pr ether was added for a 1 μ coating on the 9 μ polyester **cover** film. The main, 9 μ, coating consisted of a polysiloxane containing acryloxy groups 10 parts with 0.3 part each of 4-trimethylsilylbenzophenone as photosensitizer and of Cu phthlocyanine blue in PhMe 200 parts. The pressure-laminated plate was **exposed** through a neg. transparency to 365 nm UV light at 60 W/m2 for 20 s, stripped, and post-**exposed** for 20 min. It yielded 30,000 excellent prints without dampening.

IC G03F007-02

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic Processes)

IT Phenolic **resins**, uses and miscellaneous
RL: USES (Uses)
(novolak, photosensitive assembly with layer containing, for production of dampening-free printing plates)

L120 ANSWER 68 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1978:483934 Document No. 89:83934 Single-level **masking** process with two positive photoresist layers. Duke, Peter James; Leff, Jerry; Liclican, Leo Calica; Powell, Mark Vernon (International Business Machines Corp., USA). U.S. US 4088490 19780509, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1976-695484 19760614.

AB In the fabrication of semiconductor devices and bubble domain devices, a pattern is formed in the **1st** layer of photoresist. This pattern is heated (at .apprx.105° for >6 h), and **polymerized** to resist attack when **covered** with a **2nd** layer of the same pos. photoresist. This **1st** pattern is then insenstive to actinic radiation and is easily stripped with conventional solvents. A different pattern is formed in a **2nd** layer of photoresist. After a **1st** metal is deposited on parts of the substrate **exposed** in the **2nd** pattern, the **2nd** layer pattern is removed. A **2nd** metal is deposited on the substrate in the portions **exposed** by the **1st** pattern, and then the pattern is removed. A layer of AZ-1350J pos. resist 1.2 μ **thick** was spun on a garnet substrate, prebaked to remove excess solvent, subjected to actinic radiation for 5 s through a **mask**, and the subsequently formed pattern was baked for 18 h at 105°. A **2nd** layer of AZ-1350J 1.2 μ **thick** was spun on the **1st** pattern and treated similarly. Au was plated on the **exposed surface**, and after removal of the **2nd** pattern, permalloy metal was plated on the **exposed** areas.

IC G03C005-00

layer, prior to application of the organic film. The SiO_2 was deposited by forming SiO_2 in situ at 350° from silane, O, and N. The SiO_2 layer formation was continued until its **thickness** reached 3000 Å and its color turned purple. Subsequently, a lacquer layer was applied by using a centrifuge at 7500 rpm for 30 sec, and this layer was hardened at 70° for 30 min, followed by heating with a Hg lamp to effect **polymn**. The unpolymd. film was then removed with an organic solvent, followed by selective etching of the SiO_2 coating with a buffered HF solution This process provided an exact **masking** profile of good adhesion. The nearly complete switch element was then Au plated in the conventional manner, followed by removal of the **protective** film and the remaining intermediate SiO_2 coating to provide the completed switch.

IC C23F; B44C

CC 71 (Electric Phenomena)

ST **mask** adhesion metal **surface**; org **mask** adhesion metal; silicon integrated microswitch

L120 ANSWER 73 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1970:37029 Document No. 72:37029 **Masking** for etching to produce tapered **edge** patterns on silicon. Schaefer, Donald L. (General Electric Co.). U.S. US 3483108 19691209, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 1967-641902 19670529.

AB Tapered **edge** etching to improve the hold-off, capability of Si controlled rectifiers (SCR) through a reduction of voltage stresses in junction areas can be achieved by depositing patterns of acid-resistant metal film (analogous to those obtained by the photoresist process) on the **surface** of Si wafers containing an oxidized layer, and controlled etching away of the **exposed** portions of the SiO_2 layer. A semiconductive wafer of Si is provided with an adherent coating of SiO_2 of appropriate uniform **thickness.** A uniform layer of Au is deposited over the SiO_2, employing the vapor deposition technique, and then a **polymer** film containing an etchant for Au is overcoated from a solution of 0.2 g N,N-dibromomethylhydantoin in 5 cc Carboset Number 525 dissolved in MeOH, followed by drying at 85° in an oven for 10 min. A photographic transparency having the desired opaque, transparent, and graduated opaque zones is placed over the reactive film, which is then **exposed** for a suitable period of time to radiation from a 500-W W-filament projector for photolytically generating the Au-etching chemical reactive species. The transparency is now removed and the **polymer** film dissolved away, along with any etching reagent, to leave a HF-resistant Au pattern characterized by the required configuration. The **exposed** **surface** of SiO_2 is now **covered** with HF solution and simultaneously the remaining Au film is made the anode of an electrolytic deplating circuit, which results in a uniform removal of Au from all **exposed surfaces**, and consequently tapered **edges** are etched into the SiO_2 layer to produce the desired configuration on the Si wafer. Alternatively, the SiO_2-coated wafer is immersed in a liquid prepared by

photolytically reacting a 0.1M solution of N-chlorosuccinimide in MeOH with Au foil and the **surface** of SiO2 is **exposed** through a photographic neg . transparency to radiation from a 200-W high-pressure Xe lamp for an appropriate duration, depending on the desired **thickness** of the Au film. The subsequent processing is similar to that described in the **first** method.

IC C23B
INCL 204143000
CC 71 (Electric Phenomena)
ST silicon rectifiers prodn; rectifiers Si prodn; **masking** Si; etching Si
IT Etching
(of silica coatings for tapered **edge** in silicon controlled rectifiers)
IT Electric rectifiers
(silicon controlled, etching of tapered **edge** in silica coatings for)
IT 7631-86-9, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(etching of coatings from, for tapered **edge** on silicon controlled rectifiers)
IT 7440-57-5, uses and miscellaneous
RL: USES (Uses)
(**masking** by, in etching of silica coatings for tapered **edge** on silicon controlled rectifiers)

L120 ANSWER 74 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1969:518376 Document No. 71:118376 Offset printing plates.
Giangualano, Michael N.; Martenson, Irvin W.; Ott, Lawrence H. (Dynachem Corp.). U.S. US 3462267 19690819, 5 pp. (English). CODEN: USXXAM. APPLICATION: US 1966-562691 19660705.

AB Light-sensitive **resins** prepared from aromatic allyl esters containing >1 allyl group may be used to prepare lithographic printing plates in a similar manner to the aliphatic allyl ester **resins** described in U.S. 3,376,138 (CA 68:110318w). The sensitized coatings are storage-stable for **long** periods of time and undergo very little shrinkage when cross-linked by actinic radiation. When fully cured they show excellent resistance to abrasion, having a press life of .apprx.5 + 105 impressions. E.g., a typical formulation for photosensitized coating solution used for making printing plates: diallyl isophthalate prepolymer (Dapon M) 12, xylene 55, pentoxone (4-methoxy-4-methyl-2-pentanone 33, benzil 0.1, Michler's ketone 0.1, and xanthone 0.4 g., is prepared The prepolymer is dissolved in the xylene and the solution refined to remove insol. fractions by filtration or centrifuging. The photosensitizers, benzil, Michler's ketone, and xanthone, are dissolved in the Pentoxone and thoroughly mixed with the **polymer** solution This solution is coated on an Al sheet by whirl coating technique to produce a uniform coating 0.1-mil **thick** . After evaporation of some of the solvent the plate is heated to 125°F. for 5 min. to remove most of the residual solvent.

After cooling, the photosensitive coating is seen as a colorless, dry film on the metal **surface.** The coated plate is handled under reduced intensity illumination conventionally used in platemaking shops. The plate is **covered** with a **neg. mask** or film transparency and **exposed** through the **mask** to a C arc, Hg vapor, or other uv source, developed to remove the unhardened **polymer** by **covering** the plate with xylene, 1,1,1-trichloroethane, MeCOEt, trichloroethylene or mixture of similar solvents. A **contact** time of .apprx.1 min. is allowed before the developing solvent is flushed away with water. The photohardened **resin** image is visible at this point and is hydrophobic and sheds water, while the metal plate from which the **polymer** has been removed is fully wetted by water. After rinsing, the surplus water is removed and the plate is next **covered** with a conventional solution of **gum** arabic and dilute H3PO4. An oil-based developing ink which wets or has an affinity for the hardened **polymer** may be next rubbed over the plate to show the image for proofreading purposes. This clean, sharp, scum-free lithographic plate, after 250,000 sharp, clear impressions are obtained, shows no chipping or flaking of the image structure.

IC G03F; B41M

INCL 096033000

CC 74 (Radiation Chemistry, Photochemistry, and Photographic Processes)

IT Lithography
(plates, light-sensitive **resins** from aromatic allyl esters for offset, abrasion resistant)

IT Benzenehexacarboxylic acid, triallyl ester, **polymers**
RL: USES (Uses)
(lithographic printing plates containing, for abrasion resistance)

L120 ANSWER 75 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1969:38603 Document No. 70:38603 **Masking** a p-xylylene **polymer** and selectively etching it by a gaseous electrical glow discharge. Shepard, Robert L. (Union Carbide Corp.). U.S. US 3415986 19681210, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1965-467072 19650625.

AB Poly-p-xylylene (I) is deposited as a **thin** insulating film on the **surface** of a field-effect transistor and selectively etched by **masking**, followed by **exposure** of the **unmasked** areas to a low-pressure gaseous elec. glow discharge. Thus, a sample consisting of a 1000-A. film of I deposited on a Si disc was clamped in **contact** with a perforated metal **mask** and placed on a cathode in a vacuum enclosure. The metal **mask** and **exposed** I faced an Al anode with lateral **dimensions** twice that of the region to be etched. The **mask** was connected to the cathode and the distance between **mask** and anode was 4 cm. A glass **shield** was placed over the sample and anode and the enclosure was evacuated to 2 X 10-6 torr to remove air and water. Ar gas was introduced at 150 μ pressure and a 100-ma. current run to give 1000 v. between the electrodes. A

gaseous elec. glow discharge was established and **exposed** I was removed in .apprx.2 min. The enclosure was pumped to 2 X 10-6 torr to remove all degraded material and returned to 1 atmospheric pressure with Ar. I films were also etched using a **mask** of deposited Al.
INCL 250049500
CC 37 (Plastics Fabrication and Uses)

L120 ANSWER 76 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1966:445923 Document No. 65:45923 Original Reference No. 65:8522e-h,8523a Electroless copper plating on prepared insulating **surfaces.** Schneble, Frederick W., Jr.; McCormack, John F.; Zeblisky, Rudolph J.; Williamson, John D.; Polichette, Joseph (Day Co., N.V.). US 3259559 19660705, 12 pp.; Continuation-in-part of U.S. 3,095,309 (CA 59, 4878f) and U.S. 3,146,125 (CA 61, 14032b) (Unavailable). APPLICATION: US 19620108.
AB Adherent bright ductile Cu deposits, such as are required for printed circuits, are formed on ceramic or plastic insulating bases which are prepared with **resin**-bonded fine catalytic particles, such as powdered metal or Cu2O that is subsequently reduced by H2SO4, and Cu is deposited on them from a Cu salt solution containing formaldehyde reducing **agent**, an alkali, and suitable complexing **agents** for Cu+ and Cu2+ ions. The base can be a uniform **block** containing the catalytic particles, with holes drilled through it for treatment with the reagents to produce an internal circuit, or it can be any insulator having a **surface** layer containing such particles, or printed with an ink containing them. Formulas for 6 suitable inks or coatings are given, such as Cu2O 60, oil-soluble phenol-formaldehyde **resin** 11, epoxy **resin** 15, butadiene acrylonitrile rubber 15, diacetone alc. 50, and toluene 50 parts by weight The catalytic particles must be separated by the **resins**, and not form a conductor. After curing, the Cu2O particles in the **surface** may require slight abrasion for **exposure** to the H2SO4 **activator**, followed by the chemical plating solution Formulas for 8 suitable solns. are given, such as CuSO4 0.03, NaOH 0.125, NaCN 0.0004, tetrasodium ethylenediaminetriacetate 0.036, and formaldehyde 0.08 moles/l. in H2O, which is used at 55°. When an insulating base was molded from 155 g. of the bisphenol-A epichlorohydrin epoxy **resin** "Ciba 6005" with 155 g. 200-mesh Cu2O and 70 g. diethylene triamine harder, and set by heat in 1 hr., 1 **surface** was **masked** with a circuit pattern by a resist, and treated with 30° Baume H2SO4 for 10 min. to metallize the oxide particles. The above plating solution in 51 hrs. built up a 1-mil **thick** adherent bright circuit, according to the pattern, that could be readily soldered. Many variations of this practice are described, including the use of the adherent **resin**-Cu2O coatings on Fiberglas or anodized Al bases, and of powdered Fe, Co, Al, Zn, etc. as catalytic **agents** instead of Cu2O.
INCL 204038000
CC 20 (Nonferrous Metals and Alloys)

IT Ceramic materials, Ceramic ware
Insulators, electric
Plastics and **Resinous** products
(coating of, with Cu, **surface** treatment for)
IT Epoxy **resins**
(insulator **surface** treatment with Cu2O-containing, before Cu plating)
IT Phenol condensation products
(insulator **surface** treatment with Cu2O-containing, for Cu plating)
IT Metals
(insulator **surface** treatment with **resin** -bonded powdered, before Cu plating)
IT Coating(s)
(of insulating **surfaces**, with Cu, treatment with Cu2O or powdered metals for)
IT 7440-50-8, Copper
(coating with, on insulating **surfaces**, treatment with Cu2O or powdered metals for)
IT 50-00-0, Formaldehyde 143-33-9, Sodium cyanide 1310-73-2, Sodium hydroxide 7379-28-4, Acetic acid, (ethylenedinitrilo)tetra-, sodium salt 7758-98-7, Copper sulfate
(copper coating on insulating **surfaces** with solns. containing)
IT 9003-18-3, Acrylonitrile, **polymer** with butadiene
9003-18-3, 1,3-Butadiene, **polymer** with acrylonitrile
(insulator **surface** treatment with Cu2O-containing, before Cu plating)
IT 1317-39-1, Cu2O
(powdered, insulator **surface** treatment with **resin** -bonded, before Cu plating)

L120 ANSWER 77 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN
1965:421300 Document No. 63:21300 Original Reference No. 63:3756d-f Semiconductor devices. (Radio Corp. of America). GB 988115 19650407, 5 pp. (Unavailable). PRIORITY: US; 19620731.

AB The method described employs only a single layer of photoresist and a single **masking** operation for the fabrication of semiconductor devices. The p-n junction areas of a planar transistor are prepared by conventional diffusion techniques. On the **surface** of the semiconductor is placed a coating of Si oxide by heating the Si wafer for 30 min. at 1100°. Next, a layer of photoresist is deposited onto the Si oxide layer. A glass plate **mask**, containing the desired pattern, is positioned in registry on the photoresist layer and **exposed** to uv radiation for 3-5 min. The unpolymerized photoresist is readily removed by organic solvents such as liquid hydrocarbons and alcs. The **polymerized** photoresist areas are hardened and made acid resistant by heating the wafer 8 min. at 145°. The Si oxide regions not **protected** by the photoresist are removed by a solution of 72 ml. concentrated HF and 300 g. NH4F in 300 ml. H2O. A metallic film is evaporated over the entire **surface** of the

wafer to a **thickness** of .apprx.2000 A. The remaining photoresist areas, and the metallic film directly above them, are removed by soaking and wiping with a chlorinated organic solvent such as CH2Cl2. The solvent works its way beneath the **thin** metal layer to soften the remaining photoresist layer. Advantages are: (1) elimination of **2nd mask**, (2) decrease in scrap rate, (3) decrease in the amount of material required, and (4) decrease in the number of hand operations required.

IC H01L

CC 9 (Electric and Magnetic Phenomena)

L120 ANSWER 78 OF 78 HCAPLUS COPYRIGHT 2005 ACS on STN

1964:466571 Document No. 61:66571 Original Reference No. 61:11524a-c Photopolymerized printing plates. Hamlin, James S. (E. I. du Pont de Nemours & Co.). US 3146106 19640825, 6 pp. (Unavailable). APPLICATION: US 19600210.

AB Photopolymerizable printing plates are prepared by **exposing** to actinic light a photo-**polymerizable** layer from 3-250 mils in **thickness** comprising: (1) a preformed compatible macromol. **polymer** binding **agent**; (2) a nongaseous, addition-**polymerizable** ethylenically unsatd. compound containing ≥1 terminal ethylenic group capable of forming a high **polymer** by photo-initiated (by actinic light) addition **polymerization** in the presence of an addition **polymerization** initiator; and (3) from 0.0001-10% by weight of a thermal addition **polymerization inhibitor**, through an image-bearing transparency. The plate is **exposed** to .apprx.50-100% of the actinic radiation required for complete addition **polymerization** in the relief height-forming stratum of said layer, the finely detailed image areas are **covered** with a H2O-impermeable solvent-developer-insol. **masking** material, the **exposed** areas are washed with a solvent for the binder, until 25-84% of the unexposed portion is removed; the **masking** material is removed and the resulting element is washed with a solvent to remove the remaining unexposed portion. Thus, 1200 g. (≤0.Ol in. particle size) cellulose acetate, 890 g. polyethylene glycol 300 diacrylate, 0.89 g. anthraquinone, 520 g. succinic acid, and 0.89 g. p-methoxyphenol were mixed 5 min. and then mixed on a 2-roll mill for 15 min. at 140-50°, pressed to a 40 mil transparent sheet and laminated to a sheet of steel. An image was made on the **surface** with a lineprocess negative by **exposing** 8 min. at 30 in. under a 6000-w. C arc. The **surface** was spray-washed 6 min. with 0.04N aqueous NaOH at 24°, the **masking** tape removed and the spray wash continued for an addnl. 2 min. The plate gave satisfactory service on a rotary press.

INCL 096035000

CC 11 (Radiation Chemistry and Photochemistry)

IT 28158-16-9, Ethylene glycol, diacrylate, **homopolymer**
(in photopolymerizable for printing plate)